

Chapter 3 Affected Environment, Environmental Consequences, and Measures to Minimize Harm

3.1 Land Use

Land uses throughout the corridor vary greatly due to the length of the project. Following is a discussion of the land uses that occur within the corridor.

3.1.1 Affected Environment

For this section land uses were described for each community located within the corridor. The study area consisted of a total of 108,761 hectares (268,753 acres). The location of each community is shown in Figure 3-1.

City of San Diego

According to the San Diego General Plan, as updated and reprinted in June of 1989. The planning area consists of approximately 1,942 square kilometers (750 square miles), located between the City of Escondido in the north and the Mexican Border in the south, and between the foothills to the east, and the Pacific Ocean to the west.

The land use for the City of San Diego, as defined in the 1989 General Plan shows that 29 percent is vacant, 28 percent of the land is used as public areas, 23 percent is residential, 11 percent is agricultural, 2 percent is semi-public lands, 3 percent is commercial, and 4 percent is industrial. The planned land uses for the city showed that by the year 2000, 43,778 hectares (108,178 acres) of the available 82,409 hectares (203,638 acres) would be developed with residential, 26,890 hectares (66,447 acres) would be nonresidential, 2,812 hectares (6,950 acres) would be designated as freeway, and 38,631 hectares (95,460 acres) would remain vacant.

The City of San Diego is currently working on updating its general plan. At this time the only portion that has been updated is the Strategic Framework Element. If additional elements are completed prior to the finalization of this document, information will be updated to reflect available data. The complete general plan update is not anticipated for approximately five years.

Scripps Miramar Ranch

Scripps Miramar Ranch is located on the north central part of metropolitan San Diego. The planning area contains approximately 1,766 hectares (4365 acres) of land.

The planned land use for the community includes 192 hectares (475 acres) of very low density residential, 364 hectares (901 acres) of low residential, 40 hectares (99 acres) of low medium residential, 22 hectares (55 acres) of medium residential, and 11 hectares (29 acres) of high medium residential. In addition, there are 20 hectares (51 acres) for commercial facilities, 273 to 289 hectares (675 to 715 acres) for parks, recreation, and open space, 157 hectares (390 acres) for industrial use, 147 hectares (365 acres) for reservoir and adjoining property, 330 to 339 hectares (817 to 840 acres) for schools and other institutional uses, 0.40 hectare (1 acre) for a fire station, and 189 hectares (467 acres) for streets and other public rights-of-way.

Scripps Miramar Ranch residents presently rely on commercial facilities in Mira Mesa and other communities for many of their shopping needs. However, as the community's population increases with further development, market demand will encourage the development of additional commercial facilities.

Mira Mesa

The Mira Mesa community is approximately 4,249 hectares (10,500 acres) in area. It is located in the north central portion of the City of San Diego, 25.7 kilometers (16 miles) north of downtown San Diego, between the I-805 and I-15 corridors.

In 1993, Mira Mesa was home to approximately 62,500 people residing in 20,400 dwelling units. At this time approximately 60 percent of the community had been built and only 12 percent of the undeveloped property did not have approvals for development. At build-out, which is estimated to occur after the year 2010, Mira Mesa is expected to house 82,600 people in 28,300 dwelling units, an increase of about 32 percent over the 1993 population.

Nearly 38 percent of the community is planned for residential development at densities ranging from a maximum of four units per gross acre on Lopez Ridge, which is located above the Los Peñasquitos Canyon preserve, to a maximum of 43 units per acre near Mira Mesa boulevard and I-15. Most of the areas that remain to be developed with residential uses are constrained by steep slopes; therefore, the physical form of new development and how well it fits in sensitive slope areas will continue to be a key community issue.

Approximately 26 percent of the land area is planned for industrial and commercial office development, with another four percent planned for retail uses. Approximately 18 percent of the community is proposed as open space, primarily in the five major canyons that traverse the community (Los Peñasquitos, Lopez, Carroll, Rattlesnake, and Soledad).

As one of the major employment centers in the San Diego region, Mira Mesa will provide jobs for approximately 61,000 people at build-out. The industrial and commercial land use element of the community plan recommends preserving designated large lots for industrial, employment generating uses, and restricting retail development to existing commercial centers.

Miramar Ranch North

The Miramar Ranch North community is located in the north central part of the San Diego metropolitan area, predominantly within the northeast limits of the City of San Diego. It lies approximately 26 kilometers (16 miles) north of the San Diego central business district and 21 kilometers (13 miles) south of the City of Escondido.

The Miramar Ranch North Planning Area encompasses approximately 742 hectare (1,835 acres), including Cypress Canyon which runs east-west through the property. Approximately 254 hectares (628 acres), or 34.2 percent, of the development acreage is allocated to residential development. The other major land use is industrial/business park, which constitutes about 24 hectares (60 acres), or 3.3 percent of the development acreage. The remaining buildable property is devoted to uses such as commercial, recreation, community institutional facilities, and roadways. In addition, there are 385 hectares (953 acres), or 51.9 percent, for parks, recreational areas, and non-building areas.

Sabre Springs

Sabre Springs is located in the north inland section of the San Diego metropolitan area, within the northeast limits of the City of San Diego. The community lies on the eastern side of I-15, about 27 kilometers (17 miles) north of the San Diego Central business district and 19 kilometers (12 miles) south of the City of Escondido.

The planning area encompasses approximately 612 hectares (1,514 acres), of which about 47 percent is developable. Poway Road bisects the community into northern and southern areas of about 322 and 290 hectares (796 and 718 acres) respectively.

Approximately 196 hectares (485 acres), or 68 percent, of the developable acreage is allocated to residential development. Industrial park and commercial uses constitute 15 percent of the usable acreage.

The topography operates as both a constraint and asset in planning the community. About 37 percent of the planning area consists of slopes in excess of 25 percent. Most of these areas are difficult to develop and can be preserved as open space, acting as visual and physical buffers to adjacent communities and as preserve areas for biological resources.

A total of 4,108 dwelling units are proposed in the community. Forty-seven percent are in single-family, and 53 percent are multi-family units. This would constitute approximately 4.8 percent of the total 84,582 dwelling units planned to be developed by 2000.

Rancho Peñasquitos

The Rancho Peñasquitos community is located in the northeastern portion of the City of San Diego. Rancho Peñasquitos lies 27 kilometers (17 miles) north of downtown San Diego and eight miles south of the City of Escondido.

It encompasses approximately 2,630 hectares (6,500 acres) and had a January 1991 population of 42,500 people residing in 14,242 dwelling units. At full build-out Rancho Peñasquitos is expected to have a population of 46,000 to 50,000 people residing in approximately 15,800 dwellings.

The community is topographically diverse and is physically characterized by numerous canyons, hillsides, and ridges. Black Mountain, rising to an elevation over 1500 feet, is located in the northern portion of the community. In contrast, the Los Peñasquitos Canyon preserve, which marks the southern boundary of the community, has an elevation of less than 61 meters (200 feet). As a result of this topographic relief, most of the residential subdivisions have been developed with curvilinear streets and cul-de-sacs. Development has occurred, for the most part, on the ridges with canyons left as open space.

Approximately 51 percent of the land area in Rancho Peñasquitos is recommended for residential use. Of that acreage, 76 percent is single-family and 24 percent is multifamily. Two percent of the land area is designated for commercial uses while parks and designated open space areas comprise 34 percent of the community.

In addition, the community plan designates an undeveloped 4.1 hectares (10.23 acres) parcel for industrial use as a recreational vehicle and mini-storage site.

By 1991, the community was approximately 85 percent built-out and had development approvals for about 90 percent of the land area designated for residential use. Most of the remaining development in Rancho Peñasquitos will be single-family homes and a limited amount of commercial development.

Carmel Mountain Ranch

The community of Carmel Mountain Ranch comprises 602 hectares (1489 acres) located within the City of San Diego. It lies in the north-eastern area of the city and has been known by the name Rancho Carmel as well as Carmel Mountain East.

Of the 602 hectare (1,489 acres) comprising the Carmel Mountain Ranch Community, approximately 8.1 percent is for roads, 12.1 percent industrial, 8.9 percent commercial, 5.6 percent community facilities, 42.0 percent residential, and 23.3 percent parks and recreation.

Residential land use is further divided into 60 percent low-medium density, 26 percent medium density, 12 percent low density, and 2 percent mobile homes. The community plan indicates that the 4,997 residential units are estimated to generate a population of approximately 12,000 persons.

A community theme has been developed for Carmel Mountain Ranch to establish a distinctive identity for this new community along the I-15 corridor. The theme incorporates the extensive use of boulders, stone material, topographic relief and landscaping throughout the community to create an attractive image that integrates the existing character of the site with the planned urban development. Additionally, the theme helps provide a sense of community for Carmel Mountain Ranch.

Rancho Bernardo

Rancho Bernardo is the northernmost residential community within the City of San Diego. The community is centered on I-15 just south of Lake Hodges and the San Pasqual Valley and encompasses approximately 2634 hectares (6511 acres).

In 1988, approximately 1,845 hectares(4,560 acres), or 70 percent of the entire plan area, have been developed with a mix of recreational, residential, commercial and industrial uses.

Residential uses in 1988 consisted of about 987 hectares (2,437 acres) consisting of 13,854 dwellings. Approximately 7,975 of these dwellings are single-family homes with the remainder in multi-family residential developments.

The community plan recommends that the community be built out containing 45.2 percent residential, 23.7 percent recreation and open space, 16.3 percent transportation related, 9.4 percent industrial, 3.2 percent commercial, 6 percent schools, and 0.6 percent institutional.

Escondido

The City of Escondido lies approximately 6.66 kilometers (30 miles) north of the City of San Diego along I-15. The city occupies approximately 8,811 hectare (21,774 acres), including 405 hectares (1,002 acres) of industrially zoned lands and 81 hectare (200 acres) of undeveloped land in Quail Hills. Quail Hills is located east of Country Club Drive and west of the city's Auto Park. The City's sphere of influence encompasses 17,845 hectares (44,098 acres). The city's population is approximately 123,000 people. It attracts an additional 270,000 visitors each year to its California Center for the Arts. The city's economic base is comprised largely of small businesses, many of which are family-owned.

Escondido contained 44,986 housing units in 1999: 47 percent single family detached, 32 percent multifamily 5+ units, 9 percent mobile homes, 6 percent single family attached, and 6 percent multifamily 2-4 units.

Currently, the city's development patterns include higher density development within the downtown region and lower density development outside the downtown region.

Poway

The developed areas of Poway comprise 50 percent of the City's total land area. Of this, 63 percent is residential. Single-family homes comprise 80 percent of the dwelling units in the city while multiple-family developments comprise 16 percent, and mobile homes four percent.

As a foothill community, Poway contains large areas of steep hillsides and deep canyons, much of which is unbuildable. Regions of major environmental value cover much of the southern, eastern, and northern parts of the city and the vicinity of Twin Peaks/Boulder Mountain.

To protect these resources, and in recognition of this topography, over 1,052 hectare (2,600 acres) is designated as open space/resource management. An additional 3,561 hectare (8,800 acres) is developed with large lots under rural residential land use categories. Other land uses in Poway include public uses (1.2 percent) and commercial/industrial areas (2.1 percent).

3.1.2 Impacts

The proposed project is not anticipated to remove or modify any land uses within the project corridor. Due to current development trends within the corridor, many of the presently undeveloped surrounding areas are either not developable or are currently planned for development. This project seeks to accommodate existing traffic and the additional demand that is already planned and approved within the I-15 corridor. Several easements, both temporary and permanent, will be required to construct the project. No property acquisitions would be required, however, in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, the Department will provide relocation advisory assistance to any person, business, farm or nonprofit organization displaced as a result of the acquisition of real property for public use.

The project still remains consistent with the general plans although some of the noise walls proposed as part of the project will be higher than the standard wall heights specified for use on private property according to the communities and cities building codes..

3.1.3 Measures to Minimize Harm

The proposed project is consistent with planned land uses; thus, no additional measures are needed.

3.2 Social and Economic

The Socioeconomic Technical Study Report dated May 29, 2001, describes the existing socioeconomic environment and the impacts of the proposed action. The topics investigated include growth, community and neighborhoods, employment, and environmental justice.

In determining the study area boundaries, investigation was made into the availability of data at the Major Statistical Area (MSA), Sub Regional Area (SRA), county, city, and local levels. Ultimately, the study boundaries were defined by SRAs since data at that level was the most detailed and the most readily available.

The boundaries were defined by choosing all of the SRAs falling within or adjacent to the I-15 corridor. Though this is a fairly large area, it is appropriate given that a large portion of the County relies on I-15 due to a lack of other nearby north/south routes.

The area selected for study roughly extends from I-8 in the City of San Diego to SR 78 in the city of Escondido. The SRAs chosen for study include Kearny Mesa (SRA 10), Elliot-Navajo (SRA 17), Santee (SRA 35), Miramar (SRA 16), Del Mar-Mira Mesa (SRA 13), Poway (SRA 15), North San Diego (SRA 14), Escondido (SRA 50), and San Marcos (SRA 51). The location of these areas are shown Figure 3-2: Sub Regional Area.

3.2.1 Growth

The FHWA Technical Advisory (“Guidance for Preparing and Processing Environmental and Section 4(f) Documents,” T6640.8A, October 30, 1987), addresses the treatment of growth inducing impacts, stating:

“The secondary [impacts] of any substantial, foreseeable, induced development should be presented for each alternative, including adverse effects on existing communities. Where possible, the distinction between planned and unplanned growth should be identified.”

According to the California Code of Regulations (CEQA Guidelines) Section 15126.2(d) of CEQA, the environmental document must:

“Discuss the ways in which the proposed project could foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects that would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for an example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance.”

Affected Environment

As Table 3-1 shows, vacant land along the corridor is drastically decreasing. The amount of unplanned growth and land use changes that could occur along the corridor will be limited due to a lack of available developable land.

Table 3-1: Vacant Developable Land

Subregion Name	1995 Acreage	1999 Acreage	2020 Acreage
Kearny Mesa (SRA 10)	964	675	50
Del Mar-Mira Mesa (SRA 13)	4994	3382	97
North San Diego (SRA 14)	5174	3423	1686
Poway (SRA 15)	6647	4744	817
Miramar (SRA 16)	7	7	0
Elliott-Navajo (SRA 17)	3813	3656	1999
Santee (SRA 35)	2081	1785	223
Escondido (SRA 50)	21629	20066	5517
San Marcos (SRA 51)	4212	3144	183

Information taken from 2020 Cities/County Forecast Profiles & 2020 Region wide forecast & time series by SANDAG

One indicator that a project is growth accommodating is that the project is in conformance with general plans, area growth management plans, and community plans. Currently, the City of San Diego is in the process of updating the strategic framework element of its general plan. The strategic framework element represents the City's approach for shaping how the city will grow while attempting to preserve natural resources and amenities.

After working with residents, planning groups and partnering agencies, such as SANDAG, the City released a Draft Environmental Impact Report (DEIR) in January 2002 for its new strategic framework element: *The City of Villages Growth Strategy—Strategic Framework Element*. This new growth strategy would replace the existing 1990 guidelines for future development. According to the DEIR, "Since less than ten percent of the City's 331 square miles is currently vacant or available for development, the 1990 guidelines are now obsolete." The City of Villages Growth Strategy calls for extensive redevelopment and infill with mixed use villages of higher density attached homes and commercial and/or employment centers.

The City of Villages Plan includes five village types: the regional center, subregional districts, urban village centers, neighborhood village centers, and transit corridors. One goal of the City of Villages Strategy is to reduce auto dependence by improving transit service, walkability, and bicycle facilities.

Impacts

Although the City of San Diego's new strategic framework follows the philosophy of smart growth or enhancement of connections between residential, employment centers, or other places of importance --the DEIR does indicate that, since new development would be approved under the new framework, the framework would have growth inducing impacts.

Included in the City's analysis of the transportation impacts caused by the new framework is the need for operational improvements along the I-5 and I-15 corridors. Not only did the document identify an existing need for such improvements, the DEIR also recognized that the new framework and implementing documents could ultimately generate an additional 180,000 to 240,000 trips within the San Diego region.

In conclusion, given the fact that so little developable land remains in the City of San Diego and that most of the now vacant developable land has already been approved for development, the proposed Managed Lanes Project is not expected to induce unplanned growth. The proposed project would, however, accommodate the existing and planned growth as set forth in the applicable general plans.

Measures to Minimize Harm

Although no growth inducing impacts were identified by the Socioeconomic Technical Study, the primary responsibility for mitigating growth impacts lies with the local jurisdictions, the Department will continue to coordinate with local agencies on development issues.

3.2.2 Community and Neighborhood

Community impact assessment is a process to determine if a proposed project will impact a community and its quality of life. Following is a discussion of the communities and neighborhoods that exist in the I-15 corridor.

Affected Environment

There are many defined communities within the corridor. Within each community exists numerous neighborhoods each having distinctive characteristics that set them apart from others. Many of the areas have a strong sense of community identity and independence. To protect the community identity, each community has its own planning board, which reviews new developments according to the particular standards of the community plan. The communities considered within the City of San Diego are Scripps Miramar Ranch, Mira Mesa, Miramar Ranch North, Sabre Springs, Rancho Peñasquitos, Carmel Mountain Ranch, and Rancho Bernardo. In addition to these areas, the northern portion of the project corridor also includes the City of Escondido. For further information on these communities refer to Sections 3.1.1.

Impacts

Since the proposed project is expanding the existing transportation facility, disruptions to lifestyles, neighborhood character, or neighborhood stability would be minimal. With the exception of the City of Escondido, the established communities were developed around the existing transportation corridor. The proposed project would not add to or disrupt any of the existing communities along the corridor. This includes, disruptions to public utilities, police, fire, emergency and any other public service that is located within the community. The proposed project would be a substantial benefit to services needing freeway access. No relocations of homes or businesses would occur.

There would be temporary impacts to traffic and noise during construction. These impacts and proposed measures to minimize harm are discussed further in Section 3.17: Construction Impacts.

Measures to Minimize Harm

Since the proposed project would not disrupt any established community, no additional measures are needed.

3.2.3 Employment

The addition or reduction of employment opportunities created by a project can often influence an area's growth rate and economy. Following is a discussion of the employment impacts expected with the proposed project.

Affected Environment

Employment in San Diego experienced a drastic drop between 1990 and 1993. At this time, most of the county's employment was in defense related industry. With a reduction in military spending, the jobs began to shift from the defense industry to the wholesale trade, retail trade, services, and manufacturing sectors. This shift began in 1993 and is expected to continue through the year 2020. Although defense-related jobs have been lost, the region is expected to add 542,800 civilian jobs by 2020, representing a 50% increase in the civilian workforce. The top three employment clusters in 1995, and expected in 2020, are business services, visitor industry services, and medical services. Of the top 15 employment clusters in the county all, with the exception of environmental technology, are expected to continue to grow through the year 2020. (SANDAG "Info: A Million More People in the Region By 2020", May-June 1999 No. 3.)

Table 3-2: Changes in Employment, shows past employment trends and future forecasts through the year 2020.

Table 3-2: Changes in Employment

Subregion Name	1990 Employment	1995 Employment	2005 Employment	2020 Employment
Kearny Mesa (SRA 10)	142,474	133,103	152,279	165,446
Del Mar-Mira Mesa (SRA 13)	67,019	77,313	107,970	121,912
North San Diego (SRA 14)	25,694	35,001	51,505	58,986
Poway (SRA 15)	20,749	22,265	44,123	53,214
Miramar (SRA 16)	9,404	6,272	5,685	5,704
Elliott-Navajo (SRA 17)	24,146	21,316	25,457	26,084
Santee (SRA 35)	15,437	14,537	19,557	22,836
Escondido (SRA 50)	50,067	49,881	63,518	70,969
San Marcos (SRA 51)	28,402	30,165	55,638	67,535

Information taken from 2020 Cities/County Forecast Profiles produced by SANDAG

Impacts

In addition to serving a large number of daily commuters and the movement of goods, development of the freeway would result in the addition of numerous jobs. During construction approximately 150 full-time construction workers, plus 35 individuals from the Department's staff, would be required to complete the construction. In addition, subcontractors may also be hired. Ten to fifteen individuals from the Department would be required to operate and maintain the managed lane facility.

Measures to Minimize Harm

Since only beneficial employment impacts are expected with the proposed project, no additional measures are needed.

3.2.4 Environmental Justice

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President Clinton on February 11, 1994, requires federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health and environment of minority and low-income populations to the greatest extent practicable and permitted by law.

Affected Environment

In a study conducted in 1996, two areas were identified containing low income and minority residents within the I-15 corridor. These areas are located in southern Escondido and in Rancho Peñasquitos. Since that study, SANDAG's Demographic and Economic Mapping System has been updated and does not show any low income and minority populations adjacent to the corridor. Table 3-3: City and County Ethnic Composition, shows the ethnic composition within the project corridor.

Table 3-3: City and County Ethnic Composition

Area	White	African American	American Indian	Asian	Pacific Islander	Hispanic	Other
San Diego County	1,871,839 (66.5%)	161,480 (5.7%)	24,337 (0.9%)	249,802 (8.9%)	13,561 (0.5%)	750,965 (26.7%)	360,847 (4.7%)
City of San Diego	736,207 (60.2%)	96,216 (7.9%)	7,543 (0.6%)	166,968 (13.6%)	5,853 (0.5%)	310,752 (25.4%)	151,532 (12.4%)
City of Escondido	90,578 (67.8%)	3,009 (2.3%)	1,646 (1.2%)	5,957 (4.5%)	311 (0.2%)	51,693 (38.7%)	25,636 (19.2%)

Information taken from 2000 Census data as provided by SANDAG

The following table, Table 3-4, summarizes income levels within the Cities of San Diego and Escondido, and within the County.

Table 3-4: City and County Income Levels

Area	Median Household Income	Per Capita Income	Household Income 1999						
			Less than \$10,000	\$10,000 - \$14,999	\$15,000 - \$24,999	\$25,000 - \$34,999	\$35,000 - \$49,999	\$50,000 - \$74,999	More than \$75,000
San Diego County	\$47,067	\$22,926	71,577 (7.2%)	52,859 (5.3%)	117,642 (11.8%)	122,297 (12.3%)	159,617 (16.0 %)	200,299 (20.1%)	271,201 (27.2%)
City of San Diego	\$45,733	\$23,609	37,637 (8.3%)	25,745 (5.7%)	54,563 (12.1%)	54,499 (12.1%)	70,654 (15.7%)	87,022 (19.3%)	121,006 (26.8%)
City of Escondido	\$42,567	\$18,241	2,982 (6.8%)	2,530 (5.8%)	6,147 (14.0%)	6,224 (14.2%)	7,300 (16.6%)	8,901 (20.3%)	9,786 (22.4%)

Information taken from 2000 Census data as provided by SANDAG

Impacts

The proposed Managed Lane Project would have adverse noise and visual impacts as described in Sections 3.7 and 3.16. However, these impacts occur throughout the project corridor and would not disproportionately impact the two areas of low-income and minority populations.

As discussed in Chapter 2, the project would include features designed to improve the efficiency of local transit services, such as direct access ramps (DARs) from transit centers. These added features along with the additional managed lanes would have a substantial beneficial impact to bus service through the project corridor. Since many bus users are members of low-income or minority populations, the impact to members of low-income and/or minority populations would be beneficial.

As discussed in Chapter 2, the proposed Managed Lane Project may include the San Diego I-15 Value Pricing Program once it is approved. Under this program, the excess capacity that would be available in the managed lanes would be sold to SOV, thus allowing them to utilize the lanes. Because the Value Pricing Program would entail the implementation of tolls to SOV users, this proposed program was carefully assessed for potential environmental justice impacts.

In June 1996, a survey was conducted to gather public opinion on the Value Pricing Program. This study showed that there was a strong diversity of opinions in the public with an equal split between those who favored and those who opposed value pricing.

In March 1997, public outreach was completed to study value pricing for the existing HOV lanes. In this outreach effort, approximately 3,000 mailers were sent to a neighborhood located in Southern Escondido and another 1,600 mailers were sent to a neighborhood along Carmel Mountain Road in Rancho Peñasquitos. These neighborhoods were selected because they had low income residents, a high percentage of minorities, and a high levels of HOV users. Approximately 99 people responded to the mailers, representing a 2% rate of return.

In addition, three public meetings were advertised in the regional and local papers. Mailers advertising public meetings were sent to two targeted neighborhoods. The meetings were held at three local schools in Escondido, Rancho Peñasquitos, and San Marcos. The attendance at these meetings was extremely low. Only one person attended the Escondido meeting; no one came to the meeting at Palomar College, and six people attended the meeting in Rancho Peñasquitos. Comments from the mailers and from the public meetings were split evenly between those in favor and those opposed the current FasTrack Program on the existing reversible lanes that extend from SR-163 to SR-56.

In November of 2001, additional public outreach was conducted to determine whether views and opinions of value pricing had changed since the studies conducted in June 1996. This study solicited the views of I-15 users through four different methods. The first method utilized 3 focus groups, each consisting of 14 individuals. The second method was stakeholder interviews during which 25 key individuals were identified and interviewed for their opinions and concerns regarding the existing HOV lanes.

Next, intercept surveys of 50 carpoolers and 50 transit riders were administered by the outreach team at park-and-ride lots and transit interface points along the corridor. Finally, a detailed telephone survey of 800 peak period corridor users was conducted.

Though these studies did not specifically target low income and minority groups, but rather randomly selected users, the number of low income and minority users interviewed was higher than in the study conducted in 1997.

Of the respondents in the Intercept surveys, 22 percent of the respondents made less than \$50,000 per year, and 20 percent of the respondents were minorities. During the survey 8 percent of the respondents refused to give ethnicity and an additional 18 percent refused to give income data

From the stakeholder interviews, there was agreement that the issue of environmental justice must be taken seriously, and should be further investigated and evaluated. In addition, respondents agreed that the public perception of fairness and equity needed to be addressed.

In the intercept surveys, the majority of respondents in both transit and carpool groups believed the lanes provided encouragement for people to carpool and saw this as an additional benefit to the lanes.

In the focus groups, the majority of people based their approval of the Value Pricing Program on the fact that it provides options for all people regardless of income or ethnicity because the solo drivers help support transit and carpool alternatives.

Finally, in the telephone surveys, few respondents associated a lack of fairness or equity with the value pricing program. They considered the extension of the value pricing program to be fair to both the users of the HOV lanes and the main lanes. Approximately two-thirds of all the respondents approved of the existing value pricing program. No identifiable pattern of opinions and attitudes based on ethnicity or income was found. Nine percent of the respondents believed that the cost of the toll represented a significant barrier to public use of the value pricing program; however, this sentiment was not isolated to low income or minority populations and was spread through all segments of the population surveyed.

Both negative and positive sentiments were equally distributed throughout all income levels and ethnic groups.

Based on the above discussion, the proposed Managed Lane Project, with the inclusion of the value pricing program, would not cause disproportionately high and adverse effects on any minority or low-income populations as discussed in E.O. 12898 regarding environmental justice.

3.3 Joint Development

Joint development as discussed here is the cooperation between a public agency, such as the Department, and a private for-profit organization in the attempt to provide a mutually beneficial improvement to the transportation network. Following is a discussion of the joint development opportunities that are being undertaken in conjunction with the proposed project.

3.3.1 Affected Environment

Currently several sites located within the communities adjacent to I-15 are under development and will contribute to improvements along I-15. The developments of Rancho Encantada, 4S Ranch, Pacific Highlands, and Black Mountain Ranch all have proposed improvements or monetary contributions that are directed at improving I-15 and the local arterials surrounding I-15.

The majority of the improvements from these developments will be on the local arterials; however, some improvements could include I-15 onramps and offramps. No funding is specifically set aside or required by local agencies for other improvements on I-15 from these or any other private source other than from the 4S Ranch and Black Mountain Ranch developments.

As part of the mitigation for traffic impacts caused by the 4S Ranch Development, the developer will contribute to improvements at the Bernardo Center Drive/I-15 interchange and at the Camino del Norte/I-15 interchange. All improvements described in this section are considered operational and would be performed regardless of the Managed Lanes Project.

3.3.2 Impacts

As part of the mitigation for these developments, improvements to local streets and potentially portions of the I-15 facility adjacent to the local streets would be made, thus, offsetting traffic impacts created by the developments themselves.

Other impacts created by these developments have undergone separate local environmental approval. For additional information regarding the impacts of these developments see Chapter 4: Cumulative Impacts.

3.3.3 Measures to Minimize Harm

Additional measures to minimize harm created by these developments are the responsibility of the local jurisdictions and would be addressed during their land use planning and environmental processes.

3.4 Parks and Recreation

Two major recreational areas, Lake Hodges and Kit Carson Park, are located adjacent to I-15. Following is a discussion of the impacts that will occur at each of these locations. These locations are shown on the project features maps located on Figures 2-22 and 2-23.

3.4.1 Affected Environment

Kit Carson Park is a 115 hectare (285 acre) park which the City of Escondido acquired from the City of San Diego in 1967. Of the total 115 hectares (285 acres), approximately 40.5 hectares (100 acres) are developed with gardens, ponds, an amphitheater, and numerous other recreational facilities. The remaining 75 hectares (185 acres) is undeveloped and includes walking/hiking trails and a mitigation site for coastal sage scrub.

Lake Hodges is located between Escondido and Rancho Bernardo and is owned by the City of San Diego Water Utilities Department. The lake is within the San Dieguito River Park, which includes an extensive network of open space extending along the San Dieguito River from the ocean at Del Mar to the river's source at Ironside Spring on Volcan Mountain, just north of Julian. This park is owned and managed by the Joint Powers Authority (JPA), which is comprised of six different governmental agencies. They are the County of San Diego and the cities of Del Mar, Escondido, Poway, San Diego, and Solana Beach.

Within the open space at Lake Hodges, numerous trails exist east and west of I-15. At I-15, a trail 2.4 meter (8 foot) wide passes beneath the freeway. This trail consists of a concrete Class I bike path with an adjacent 1.2 meter (4 foot) wide dirt hiking/equestrian trail. The trail extends along the east side of the freeway from the parking lot located at the end of Sunset Drive to the bridge. Once the trail arrives at the lake it cuts into the Department's right of way (see Figure 2-21).

Two new recreational trails are being proposed within the project corridor by other agencies as separate projects. One is under Los Peñasquitos Creek bridge and the other is just west of I-15 over Lake Hodges. Partial funding for the Lake Hodges bike path has been secured through the use of Transportation Enhancement Act (TEA) funds, and the JPA is the lead agency on developing this project. Currently, bicycles are allowed on I-15 shoulders over Lake Hodges. The second trail is the Los Peñasquitos Creek trail proposed by the City of San Diego that would consist of an 2.4 meter (eight foot) wide trail surfaced with decomposed granite. The trail would be part of the proposed trans-county trail system with this segment extending from I-15 to Black Mountain. Both the Los Peñasquitos Creek and Lake Hodges trails are being reviewed by the Department's design engineers to minimize disturbances to these new bike paths in the event they are constructed prior to the proposed project.

3.4.2 Impacts

The proposed project would not require permanent acquisition of any portion of Kit Carson Park but would require a temporary construction easement within the park. Replacement of the North County Fair/Del Lago Bridge would include new abutments that require grading into Kit Carson Park. Grading activities would not extend past the current bridge approach fill. Grading impacts to Kit Carson Park would be temporary in nature and would not be substantial since they will not impair the function of this unusable portion of the park. At a meeting with the City of Escondido held on April 2, 2002, impacts to the park were discussed. City Staff present at this meeting agreed that the temporary use of this portion of park would not deter park activities.

During the proposed replacement of the I-15 bridge at Lake Hodges, the trail leading up to the undercrossing would be utilized as an access point for construction equipment and personnel. Replacing the Lake Hodges Bridge could result in reduced vertical clearance at the undercrossing.

Currently the existing minimum vertical clearance is 3.6 meters (12 feet), while after construction the bridge would have a minimum clearance of 3.35 meters (11 feet). See Figure 3-3 for a cross section of the Lake Hodges Bridge. Construction activities, which would take approximately 24 months to complete, would result in a temporary vertical clearance of approximately 3.35 meters (11 feet). In addition, a small area to the northwest of the bridge is proposed to be used as an equipment staging area during bridge construction.

Bridge construction at Lake Hodges would result in temporary disruptions to trail users and would result in approximately 5 days of complete closures. Impacts to the trail beneath the Lake Hodges Bridge would not be considered an impact to a Section 4(f) resource (49 U.S.C. Sec 303) since the trail is located within State right-of-way and is considered a secondary use of the property. A condition of the encroachment permit dated October 13, 1994 states that “Permittee will vacate the State Right of way, should such right of way become needed for highway purposes;” thus, further showing that the trail is not the primary use of the property.

Coordination with the the JPA and City of Escondido Parks and Recreation Department is currently ongoing. Initial coordination with JPA regarding the potential trail impacts took place on March 16, 2002. A follow-up meeting was held on March 26, 2002 to address concerns regarding the change in vertical clearance on the Lake Hodges bike trail. It was determined from these meetings that JPA had concerns regarding the lowering of the bridge and requested a minimum clearance of 3.35 meters (11 feet). In addition JPA expressed concern regarding tunnel effects and lack of light due to the additional structures covering the trail.

3.4.3 Measures to Minimize Harm

Within 60 days of the completion of the abutment work at Kit Carson Park, the park will be returned to the same condition as was found prior to grading. All vegetation that would be removed during construction would be restored in kind. This would include a 3 year plant establishment period.

The Department would make every effort to minimize the temporary construction impacts to the trail at Lake Hodges. Bridge construction would take approximately 24 months, but minimal closures would be required for demolition of the existing bridge and during construction of the new bridge. In the event that a full closure of the trail is required for work over the trail, coordination with JPA would occur to ensure that trail users are notified prior to the closure.

To minimize interference with trail operations, major construction equipment accessing the lake bed would be permitted to cross the trail only in the early morning and late evening when there is less traffic on the trail. In addition, the trail would remain open on weekends, holidays, and for special events. In the event that smaller equipment would need to be brought across the trail during open hours, construction personnel and appropriate signage would be located at either end of the trail to inform users.

Lighting would be installed under the bridge to help eliminate tunnel effects and to improve safety underneath the proposed structure.

3.5 Pedestrian and Bicycle Facilities

Construction of transportation facilities, especially construction of new facilities, can act as both a physical and psychological barrier to pedestrians and bicyclists. Where freewayss cross paths and trails, access may be restricted or cut off all together. Pedestrians and cyclists may perceive this barrier even though trail access is maintained. The following section will discuss impacts to bicycle and pedestrian facilities within the corridor.

3.5.1 Affected Environment

Besides the Lake Hodges bike path discussed in the previous section, a bike path connecting Mira Mesa and Poway may also be affected by the project. This bike path is located on the eastside of I-15 extending from Erma Road (accessible from Mira Mesa Boulevard) to Scripps Ranch Boulevard and continuing to Poway Road/Rancho Penasquitos Boulevard on the north end.

This bike path is a Class I bike path, meaning the trail has a completely separate right-of-way for the exclusive use of non-motorized travel.

A second bike path exists along westbound SR-56. This bike path extends from Black Mountain Road to I-15 and varies from a path with shared right-of-way designated by signs to a completely separate right-of-way for the exclusive use of non-motorized travel.

A third bike path is located at the Escondido Flood Control Channel undercrossing. This path is a bike, pedestrian, and maintenance access road on the south side of the channel.

Currently at the Lake Hodges Bridge bike traffic is permitted to use the freeway shoulder since no other alternative to cross the lake exist. The northbound bike traffic is barrier separated from the main lanes.

3.5.2 Impacts

The Mira Mesa bike path could experience temporary construction related impacts including noise; however, it would remain open during construction. On the southern end of this path where there is little separation between the trail and the travel lanes, a detour would be required during construction that shifts the trail slightly to the east. During construction the current trail width of 3.65 meters(12 feet) would be maintained.

The bike path located along SR-56 will be relocated due to the widening of SR-56. Widening would begin at the 15/56 overcrossing and would extend 400 meters (1,312 feet) to the west. This expansion would require that the bike path be realigned. The new bike path would be constructed prior to the closure of the existing path thus reducing the time that closures would be necessary. A temporary closure would still be required in order to connect the new path to the existing.

During replacement of the lake Hodges Bridge, bicycle traffic will not be permitted to use the facility provided that another alternative to crossing Lake Hodges exists. It is anticipated that at the time of construction there will be an additional route across the lake. See Chapter 4 cumulative impacts for a discussion of the new bike bridge that JPA is proposing across Lake Hodges.

No impacts are anticipated to the bike path located at the Escondido Flood Control Channel undercrossing.

3.5.3 Measures to Minimize Harm

To minimize interference with the Mira Mesa bike path operations, construction equipment would be permitted to only cross the trail, at designated areas, in the early morning and late evening when there is minimal traffic on the trail. Currently the trail hours are dusk to dawn, however this is anticipated to change once the San Dieguito River Parks' proposed bike/pedestrian bridge is constructed across the lake.

In the event that equipment needs to be brought across the trail during daylight hours, construction personnel and appropriate signage would be located at either end of the trail to inform users.

Because many of the overcrossing structures would be replaced as part of the proposed project, opportunities would exist to upgrade these structures to provide for enhanced bicycle and pedestrian features.

Some of the features that would be provided include:

- Lighting
- Wider sidewalks [1.8m-2.4 m (6.0 –8.0 feet) wide]
- Full standard shoulder widths [1.2m-2.4 m (4.0 –8.0 feet) wide]
- Standard Class 1,2, or 3 bike facilities as appropriate

3.6 Air Quality

In March 2001, an Air Quality Study Report was prepared for the proposed Managed Lanes project. This report describes the air pollutants associated with motor vehicle exhaust, determines applicable air quality standards and regulations, examines the existing air quality conditions in the study area, and identifies and quantifies the possible air quality impacts that could result from the proposed improvements. Following is a discussion of impacts associated with the proposed project.

Air Quality is regulated through both the State and federal Clean Air Acts. The California Clean Air Act, established in 1988, provides a framework for air quality planning and other actions to meet the health-based State Ambient Air Quality Standards. (California Air Resource Board, 2002.)

The Federal Clean Air Act is the federal law passed in 1970 and last amended in 1990 which forms the basis for the national air pollution control effort. Basic elements of the act include national ambient air quality standards for major air pollutants, hazardous air pollutants standards, State implementation plans, motor vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

3.6.1 Affected Environment

The portion of the I-15 corridor under study is located in the San Diego Air Basin (SDAB). When an air basin does not meet the air quality standard for a particular pollutant, the area is designated as a “non-attainment” area for that pollutant.

Alternately, the “attainment” designation is used for any area that meets air quality standards for a particular pollutant. Table 3-5 shows a brief summary of the attainment status of the different pollutants within the San Diego Air Basin.

Progress has been made in the SDAB in attaining federal and State air quality standards. Federal and State standards have been met for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide (CO). Federal standards are currently being met for inhalable particulate labeled as PM10. SDAB's status as an attainment area for particulate matter may change if the federal standard changes from regulating particulate matter at the 10 micron size to including particulate matter at the 2.5 micron size. Monitoring began for the new PM2.5 standard in January 1999; however, at this time according to the San Diego Air Pollution Control District's (SDAPCD) 2001 Annual Report, a minimum of three years of data are needed to determine attainment status. The attainment status of San Diego County is to be designated in 2003, pending the outcome of the review in 2002. State standards for PM10 have not been met. Currently, SDAB is classified as a "serious" ozone non-attainment area under both the State and federal Clean Air Acts.

Table 3-5: Attainment Status

Pollutant	Attainment Status	
	State	Federal
Carbon Monoxide	Maintenance	Maintenance
Lead	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Ozone	Serious Non-Attainment	Serious Non-Attainment
PM10	Non-Attainment	Attainment
PM2.5	Unclassified	Unclassified
Visibility	Unclassified	No Standard
Sulfur Dioxide	Attainment	Attainment
Hydrogen Sulfide	Unclassified	No Standard
Sulfates	Attainment	No Standard

The SDAB's non-attainment classification for ozone is based on the one-hour standard set forth by the regulatory agencies. This standard establishes the minimum State and federal control requirements and the federal attainment deadlines for the San Diego Region.

The current federal one-hour standard for ozone may soon be altered to include an eight hour standard. Even if this occurs, no change in the ozone classification for SDAB is anticipated.

3.6.2 Impacts

Regional air quality impacts were evaluated relative to the Regional Transportation Improvement Program (RTIP) which is a component of the Regional Air Quality Strategic/State Implementation Plan (RAQS/SIP).

The SANDAG 2020 Regional Transportation Plan was found to conform by SANDAG Board on February 25, 2000, and FHWA and FTA adopted the air quality conformity finding on April 13, 2000. The project is also included in SANDAG's financially constrained 2000 Regional Transportation Improvement Program, pages 5, 24, 57, and 99. The SANDAG 2001 Regional Transportation Improvement Program was found to conform by FHWA and FTA on October 6, 2000. The proposed project is also included in SANDAG's adopted financially constrained 2002 Regional Transportation Improvement Program, pages 5, 14, 24, 27, 28, 113, 114, and 124. Federal action on the 2002 RTIP is expected in early October 2002. The design concept and scope of the proposed project is consistent with the project description in the 2020 RTP, 2001 RTIP and 2002 RTIP and the assumptions in SANDAG's regional emissions analysis. The assumptions used for the I-15 Managed Lanes project-level analysis are consistent with those used in the regional emissions analysis.

The Air Quality Study dated March 2001, includes evaluations of project-related ozone, particulate matter, and carbon monoxide, which are constituents that can impact sensitive and representative receptors at locations such as hospitals, senior citizen housing, and schools located in and around the project area.

Meeting air quality conformity standards, according to the budgets contained within the SIP, means that there will be no significant exceedances of vehicular emissions, which include reactive organic gases (ROG) and nitrogen oxides (NO_x). These compounds are precursors to regional smog (ozone) formation. A separate regional ozone air quality analysis is not performed because the analyses in the RTP and TIP reports had demonstrated that the region's ozone air quality would benefit from, or at least not be negatively impacted by, the proposed project. The proposed project is not anticipated to measurably worsen regional ozone levels.

At the regional scale, this project is included in the approved RTP and Transportation Improvement Program (TIP). Regional PM₁₀ SIP budget compliance was accounted for during the RTP and TIP conformity determinations.

Projects are only subject to hot spot analysis for PM₁₀ if they are located in a federal PM₁₀ non-attainment or maintenance area (federal standards), for purposes of Transportation Conformity.

Currently, the San Diego Air Basin is classified as a Federal PM₁₀ attainment area under the federal Clean Air Act (CAA); therefore a PM-10 Hot Spot Analysis is not required.

Carbon monoxide levels that would result from motor vehicles on roadways along the project alignment were analyzed for the existing traffic year 1999 and the project's design year 2020. The study analysis methodology used the Transportation Project-Level Carbon Monoxide Protocol Screening Procedure that has been designed to estimate 8-hour carbon monoxide (CO) concentrations. The results from the analysis were used to compare the proposed project with the existing conditions. Fifteen sensitive receptor sites were chosen within the project limits. Typical sensitive receptor locations include hospitals, senior citizen housing, and schools. The representative sensitive receptors for the proposed project include senior citizen housing and schools located adjacent to I-15.

The estimated CO concentrations with the proposed project range between approximately 12.2 to 14.3 ppm for 1-hour CO levels. These concentrations are within the acceptable CO standards of 20 ppm for the State 1-hour standard and 35 ppm for the federal 1-hour standard. For the 8-hour CO levels, the estimated CO concentrations with the proposed project range between 7.3 to 8.6 ppm. These concentrations are below the State and federal standard of 9 ppm for the 8-hour CO levels.

Three intersections within the project area were further analyzed to determine if the proposed project would have adverse air quality impacts due to CO concentrations. These sites included Pomerado Road/Miramar Road, Mira Mesa Boulevard, and Rancho Bernardo Road. According to results of this analysis, implementation of the proposed project would not adversely impact existing CO concentrations at representative sensitive receptors within these intersections. Therefore, the proposed project would not violate any State or federal CO standards.

3.6.3 Measures to Minimize Harm

As discussed above, the proposed project would not cause any adverse air quality impacts; therefore, no additional measures are necessary.

3.7 Noise

A noise study report, *I-15 Managed Lanes Project Noise Study Report*, was prepared for the project in June 2000. This study was required to satisfy the Department's Traffic Noise Analysis Protocol (1998), which is based upon FHWA noise regulations, Title 23 Code of Federal Regulations Part 772 (23 CFR 772). A discussion of the potential noise related issues associated with the proposed project is below.

3.7.1 Affected Environment

During the noise study two sets of 10-minute noise measurements were taken at 244 different locations throughout the corridor. These sites were placed at selected sensitive receptors adjacent to I-15. Sensitive receptors within the corridor included residences, schools, commercial buildings, churches, and parks. Long-term measurements of up to 72-hour duration were made at 11 sites concurrently with the short-term measurements. In addition, data from traffic counts, meteorological measurements, and traffic speed surveys were gathered.

In the noise study, the corridor was broken into analysis segments that were delineated by intersections of I-15 with major roadways. The segments discussed are easily definable points to help facilitate descriptions of the study area. The analysis segments begin at the southern end of the project study area and progress northward. Following is a description of receptor locations and land uses in each segment.

- **Segment 1: Miramar Road / Pomerado Road (southern crossing) to Carroll Canyon Road (Approximate Length = 1.2 km [0.75 mile])**

Receptor Sites: 103, 102, 101, 100, 105c, 105b (See Figure 2-6 and 2-7)

Receptors 100 through 103, 105C and 105B are located on the west side of I-15 adjacent to Carroll Canyon Road and consist of the Creekside Apartments and the Maya Apartments complexes.

Noise-sensitive land uses within Segment 1 consist of multi-family residential units. Some residential units are located above the freeway elevation, while others are at or below the freeway elevation. Other land uses within Segment 1 include commercial and light industrial developments on the east and west sides of the I-15.

Besides traffic noise, the area also experiences frequent aircraft (rotary and fixed-wing) noise from Marine Corps Air Station (MCAS) Miramar, which is located to the south of the segment. Operations from MCAS Miramar generally occur during the mid-to late-morning, afternoon, and early evening hours.

- **Segment 2: Carroll Canyon Road to Mira Mesa Boulevard (Approximate Length = 1.5 km [0.93 mile])**

Receptor Sites: 105, 105A, 1105, 104, 104A, 1303-1, 303, 1303-2, 302, 1302-2, 1302-1, 301/301R, 1301, 300/300R (See Figure 2-6 and 2-7)

Receptor Sites: 105, 105A, 1105, 104, 104A, 1303-1, 303, 1303-2, 302, 1302-2, 1302-1, 301/301R, 1301, 300/300R (See Figure 2-6 and 2-7)

Receptors 105, 105A, 1105, 104 and 104A are located on the west side of I-15 just north of Carroll Canyon Road and consist of the Camelot Mesa Townhomes complex. Receptors 300 through 303, 1303-1, 1303-2, 1302-1, 1302-2, 1301 are located on the west side of I-15 north of Carroll Canyon Road and consist of the Mira Woods Apartment complex.

Noise-sensitive land uses within Segment 2 consist of multi-family residential units. The residential units are below the freeway elevation. Other land uses within Segment 2 include commercial and retail developments on the east and west sides of I-15. Besides traffic noise, the area also experiences frequent aircraft (rotary and fixed-wing) noise from Marine Corps Air Station (MCAS) Miramar, which is located to the south of the segment. Operations from MCAS Miramar generally occur during the mid-to late-morning, afternoon, and early evening hours.

- **Segment 3: Mira Mesa Boulevard to Scripps Poway Parkway / Mercy Road (Approximate Length = 2.3 km [1.4 mile])**

Receptor Sites: 106, 3, 107, 108, 1002, 2A, 2, 1109, 109, 1110, 1112, 112A, 112, 113, 114A, 114, 115A, 116, 110, 1A, 1, 111, 117, 3A, 118 (See Figure 2-8)

Receptors 107 through 110, 2, 3, 1002, 2A, 1109, and 1110 are located on the east side of I-15 just north of Mira Mesa Boulevard and are located in the Scripps Westview Townhomes complex. Receptors 3 and 106 are located on the east side of I-15 just north of Mira Mesa Boulevard and are located in an un-named apartment complex. Receptors 1112, 112, 112A, 113, 114, 114A, 115A and 116 are located on the west side of I-15 just north Mira Mesa Boulevard and consist of single-family residential units.

Receptors 1A, 1, 111, 117, 3A, and 118 are located on the east side of I-15 and consist of the Scripps Townhomes complex.

Noise-sensitive land uses within Segment 3 consist of multi-family residential buildings on the east side of I-15, and single-family residential dwellings on the west side. The multi-family residences on the east side of I-15 vary in elevation from elevated above the freeway to level with the freeway grade. The single-family residences on the west side of I-15 are well below the elevation of the freeway. These residences benefit from topographical shielding provided by the freeway's edge-of-shoulder.

Other land uses within Segment 3 include commercial and retail development, and open space. Noise sources in the area other than I-15 include aircraft from MCAS Miramar.

- **Segment 4: Scripps Poway Parkway / Mercy Road to Poway Road / Rancho Penasquitos Boulevard (Approximate Length = 1.3 km [0.80 mile])**

Receptor Sites: 306, 305, 307, 304, 304A, 304B, 119, 120A/B, 120, 121, 1122-2, 1122-1, 122A/AR, 123A, 124A, 125/125R, 1125-2 (See Figure 2-9 and 2-10)

Receptors 304 through 307 are located on the west side of I-15 just north of Scripps Poway Parkway/Mercy Road and consist of the Canyon Hills Apartment complex. In June 2000 when the noise study was being conducted, receptors 304A and 304B consisted of the Allegra single family residences. Receptors 119 through 121 and 120A/B are located in the Suerte Apartment complex. Receptors 1122-2, 1122-1, 122A/AR, 123A, 124A, 125/125R, and 1125-2 are located on the west side of I-15 just north of the Los Penasquitos Canyon Bridge up on the hillside and consist of single family residences.

Noise-sensitive land uses within Segment 4 consist of recreational areas (Los Penasquitos Canyon Preserve) and both multi-family and single-family residential units along the west side of I-15. The multi-family residences near the southern portion of Segment 4 are all below the grade of the freeway. The single-family residences near the northern portion of Segment 4 are above the freeway grade and generally have a direct view of I-15. Some of these homes have only elevated decks (there are no "rear yards", per se). The eastern boundary of Los Peñasquitos Canyon Preserve abuts I-15, and lies in the middle of Segment 4, between the multi-family and the single-family residential areas. Other land uses within Segment 4 include commercial and retail development, and open space. Noise sources in the area other than I-15 include aircraft (primarily rotary-wing) associated with MCAS Miramar.

- **Segment 5: Poway Road / Rancho Penasquitos Boulevard to SR-56 / Ted Williams Parkway (Approximate Length = 2.1 km [1.30 mile])**

Receptor Sites: 126, 127A, 128, 129, 130, 5, 131 (See Figure 2-11 and 2-12)

Receptors 126, 127A, and 128 are located on the west side of I-15 just north of Rancho Penasquitos Boulevard at the top of the hillside overlooking the freeway and consist of single-family residential units. Receptors 129 through 131, and 5 consist of the Terra Vista Townhomes complex that are located on top of the hillside on the west side of I-15 overlooking the access ramps for the express lanes.

Noise-sensitive land uses within Segment 5 consist of multi-family residential buildings along the east side of I-15, and multi-family and single-family residential dwellings along the west side of I-15. All of the residential land uses within Segment 5 are located well above the freeway, and are generally set back from the freeway. Other land uses within Segment 5 include light industrial, commercial and open space. Noise sources in the area other than I-15 include aircraft (primarily rotary-wing) from MCAS Miramar flying overhead.

- **Segment 6: SR-56 / Ted Williams Parkway to Carmel Mountain Road (Approximate Length = 1.7 km [1.05 mile])**

Receptor Sites: 309, 308, 1312, 312, 311, 1310, 310, 1132, 132, 6, 1133-1, 133, 1133-2, 138B, 138A, 134, 1134, 1135-1, 135, 8, 1135-2, 136, 1136, 137, 1137, 7, 1138-1, 138, 1138-2, 139ALT, 139, 1139, 1140-1, 140, 1140-2, 141, 1141, 316, 315, 1314, 314, 313, 1142, 142A, 143A, 1143, 144, 1144, 145, 1145, 9, 146 (See Figure 2-12 and 2-13)

Receptors 309 and 308 are located within the southwestern quadrant of the intersection of SR-56 and I-15 and consist of a vacant lot. These areas were measured to obtain general information regarding current and future noise levels throughout the corridor. Receptors 1312, 312, 311, 1310, 310, 1132, 132, 6, 1133-1, 133, and 1133-2 are located on the west side of I-15 just north of SR-56 overlooking the SR-56/I-15 transition and consist of single-family residential units. Receptors 138B and 138A are located on the east side below I-15 at the Carmel Mountain Ranch Community Park just north of SR-56. Receptors 134 through 137, 313 through 316, 1134, 1135-1, 8, 1135-2, 1136, 1137, 7, and 1314 are located on the west side of I-15 just south of Carmel Mountain Road and consist of the Leisure Village complex. Receptors 138 through 141, 1138-1, 1138-2, 1139, 1140-1, 1140-2, and 1141 are located on the east side of I-15 just south of Carmel Mountain Road and consist of the Cambridge complex.

Receptors 1142, 142A, 143A, 144, 1143, 1144, 145, 1145, and 9 are located on the east side of I-15 just south of Carmel Mountain Road and consist of the Waterfield Laurels single family residential complex. Receptor 146 is located on the east side of I-15 just south of Carmel Mountain Road and consists of a restaurant and commercial space. Receptor 146 would not be considered a sensitive receptor.

Noise-sensitive land uses within Segment 6 consist of public recreational facilities (Carmel Mountain Ranch Community Park and Country Club on the east side of I-15), a hotel on the east side of I-15, multi-family and single-family residential dwellings along the east side of I-15, and multi-family residences along the west side of I-15. Along the east side of I-15, receivers are generally below freeway grade.

Along the west side of I-15, receivers vary from below freeway grade at the south end of Segment 6, to above and then below freeway grade progressing northward. Other land uses within Segment 6 include retail development, located on the west side of I-15, at the north end of Segment 6. Noise sources in the area other than I-15 include aircraft (primarily rotary-wing) occasionally flying overhead from MCAS Miramar.

- **Segment 7: Carmel Mountain Road to Camino del Norte (Approximate Length = 2.2 km [1.36 mile])**

Receptor Sites: GC-1, GC-2, GC-3, GC-4, GC-5, 147, 148, 149, 150, 151, 1151, 152, 13, 153A, 12, 154, 155 (See Figure 2-14 and 2-15)

Receptors GC-1 through GC-5 are located on the west side of I-15 just north of Carmel Mountain Road at the privately owned Carmel Highland Doubletree Golf and Tennis Resort. Receptors 147 through 151, and 1151 are located on the west side of I-15 between Carmel Mountain Road and Camino del Norte and consist of an unnamed single family residential complex. Receptors 152 through 155, 12, and 13 are located on the west side of I-15 just south of Camino del Norte and consist of an unnamed single family residential complex.

Noise-sensitive land uses within Segment 7 consist of private recreational facilities (Golf and Tennis Resort), and multi-family and single-family residential dwellings along the west side of I-15. Source-receptor geometry varies from receivers located above freeway grade to below freeway grade. Other land uses within Segment 7 include retail, commercial and light industrial developments. Noise sources in the area other than I-15 include aircraft (primarily rotary-wing) occasionally flying overhead from MCAS Miramar.

- **Segment 8: Camino del Norte to Bernardo Center Drive (southern crossing) (Approximate Length = 1.7 km [1.06 mile])**

Receptor Sites: 156, 157, 1158, 158, 159, 160, 161, 165A, 1165, 1162, 162, 163, 164, 1176, 176, 166, 1166, 167, 168, 1168, 169, 170, 171, 1171, 1172-1, 18, 172A, 1172-2, 173, 1173, 174A, 17, 175, 177, 178, 1790, 179, 179C, 180, 1180, 181, 1181-1, 1181-2, 318, 1318, 317, 1019-1, 19, 1019-2, 1019-3, 1019-4 (See Figure 2-15 through 2-17)

Receptors 156 and 157 are located on the west side of I-15 just south of Camino del Norte and consist of The Villas Apartment complex. Receptors 158 through 161, 165A through 175, 1158, 1165, 1166, 1168, 1171, 1172-1, 18, 1172-2, 1173, and 17 are located on the west side of I-15 between Camino del Norte and Bernardo Center Drive on the hillsides overlooking the freeway and consist of the High Country West single family residential Complex. Receptors 162 through 164 and 1162 are located on the east side of I-15 just north of Camino del Norte and consist of the RV Bernardo Vistas single family residential Complex. Receptors 176 through 181, 1019-1 through 1019-4, 1176, 179D, 179C, 1180, 1181-1, 1181-2, 318, 1318, 317, and 19 are located on the east side of I-15 just south of Bernardo Center Drive on the hillsides overlooking the freeway and consist of the Woodcrest Heights, Tierra del Sol, Palazzo Bernardo Villa Venusto, and Villa Ladera Vistas single family residential complexes.

Noise-sensitive land uses within Segment 8 consist of single-family residential dwellings along the east and west sides of I-15. Most of the residences are above freeway grade within Segment 8, with the exception of the southernmost residences on the west side of I-15, which are below grade. Other land uses within Segment 8 include recreational (Bernardo Heights Country Club, on the east side of I-15 and below freeway grade), commercial and open space uses. Noise in the area other than I-15 includes occasional aircraft noise (primarily rotary-wing) associated with MCAS Miramar.

- **Segment 9: Rancho Bernardo Road to Bernardo Center Drive (northern crossing) / Duenda Road (Approximate Length = 1.1 km [0.68 mile])**

Receptor Sites: 182, 183, 1183, 22, 184, 23, 1023, 185, 24, 1186, 186, 187, 188A, 20, 189, 1189, 21, 1021, 190, 1190, 191, 25 (See Figure 2-18 and 2-19)

Receptor 182 is located on the west side of I-15 just north of Rancho Bernardo Road and consists of the Elephant Bar. Receptor 182 would not be considered a sensitive receptor.

Receptors 183 through 186, 22 through 24, 1183, 1186, and 191 are located on the west side of I-15 just south of Bernardo Center Drive/Duenda Road and consist of the Villaggio apartment complex, the Casa Bernardo townhouses, and the Westwood III Townhouses. Receptors 188A, 187, and 20 are located on the east of I-15 just north of Rancho Bernardo Road and consists of the Racquet Club apartment complex. Receptors 189, 1189, 21, 1021, 190, 1190, and 25 are located on the east side of I-15 just south of Bernardo Center Drive/Duenda Road and consist of the Playmore Condominium complex.

Noise-sensitive land uses within Segment 9 consist of multi-family residential dwellings along the east and west sides of I-15. The residences on the east side of I-15 are above freeway grade, while the residences on the west side are below-grade. Other land uses within Segment 9 include retail and commercial development. Noise sources other than I-15 include aircraft (primarily rotary-wing) occasionally flying overhead from MCAS Miramar.

- **Segment 10: Bernardo Center Drive (northern crossing) / Duenda Road to Green Valley Creek Bridge (Approximate Length = 1.3 km [0.80 mile])**

Receptor Sites: 1192, 192, 1027-1, 27, 1027-2, 1193-1, 193, 1193-2, 194, 1195-1, 195, 1195-2, 11320, 320, 1320, 26, 1026-1, 1026-2, 319, 1319, 1197, 197, 30, 198, 322, 1029-1, 1029-2, 29, 323 (See Figure 2-19 through 2-20)

Receptors 1192 and 192 are located on the west side of I-15 just north of Bernardo Center Drive/Duenda Road and consists of the Rancho Bernardo Baptist Church.

Receptors 193 through 198, 1027-1, 27, 1027-2, 1193-1, 1193-2, 1195-1, 1195-2, 1197, and 30 are located on the west side of I-15 just north of Bernardo Center Drive/Duenda Road and consist of unnamed single family residential complexes. Receptors 11320, 320, 1320, 26, 1026-1, 1026-2, 319, 1319, 1029-1, 1029-2, and 29 are located on the east of I-15 just north Bernardo Center Drive/Duenda Road and consists of the Bernardo Point Condominiums and Eastview single family residential complexes. Receptors 322 and 323 are located on both sides of the freeway below the Green Valley Bridge.

Noise-sensitive land uses within Segment 10 consist of condominiums and single-family residential units along the east side of I-15. Along the west side of I-15, there are single-family land uses and a church. The residences on the east side of I-15 are above freeway grade, while the residences on the west side are below-grade. The church on the west side of I-15 is slightly above freeway grade. At the Green Valley Creek Bridge, there is a city owned vacant parcel that is not open to the public, located on the east and west side of I-15. The parcel is below freeway grade.

Noise sources other than I-15 include aircraft (primarily rotary-wing) occasionally flying overhead from MCAS Miramar.

- **Segment 11: Green Valley Creek Bridge to Bernardo Drive / Pomerado Road (northern crossing) (Approximate Length = 1.4 km [0.86 mile])**

Receptor Sites: 321, 324A, 1324, 324, 1031A-1, 1031A-2, 199, 1199, 200, 31, 1031-1, 1031-2, 1031-3, 31A, 1031A-3, 1031B, 31B, 201, 202, 203, 325, 1325-1, 325A, 1325-2, 328 (See Figure 2-20 and 2-21)

Receptors 321, 324A, 1324, and 324 are located on the west side of I-15, north of the Green Valley Bridge, and consist of the Rancho Bernardo Community park. Receptors 201 through 203, 1031A-1 through 1031A-3, 31A, 1031B, 31B are located on the west side of I-15 just south of Bernardo Drive/Pomerado Road and consist of the Casa de la Campanas complex. Receptor 328 is located on the west side of I-15 along the shoulder just south of the Lake Hodges Bridge.

Receptors 199, 1199, 200, 31, 1031-1 through 1031-3, 325, 1325-1, 325A, 1325-2 are located on the east side of I-15 just south of Bernardo Drive/Pomerado Road and consist of the Morado Condominiums and Chaumiere Townhomes.

Noise-sensitive land uses within Segment 11 consist of multi-family residential dwellings along the east side of I-15. Along the west side of I-15, there are recreational (Rancho Bernardo Community Park) and multi-family land uses (a retirement community). The residences on the east and west sides of I-15 are above freeway grade, while the recreational land uses on the west side are below-grade and separated from I-15 by Bernardo Drive. Other land uses within Segment 11 include undeveloped lands.

Noise sources other than I-15 include aircraft (primarily rotary-wing) occasionally flying overhead from MCAS Miramar.

- **Segment 12: Bernardo Drive / Pomerado Road to Via Rancho Parkway (Approximate Length = 1.5 km [0.93 mile])**

Receptor Sites: 1327-3, 1327-2, 1327-1, 327, 1204-1, 204, 1204-2, 1205, 205, 326, 206C, 1206, 206, 206B, 206A (See Figure 2-21 and 2-22)

Receptors 1327-1 through 1327-3, 327, 326, 206C, 206B, 206A are located on both the east and west side of I-15 along the North Shore Bike Trail that goes through the San Dieguito River Valley Regional Open Space Park surrounding Lake Hodges.

Receptors 204 through 206, 1204-1, 1204-2, 1205, and 1206 are located on the west side of I-15 just north of the Lake Hodges Bridge on the hillsides overlooking the freeway and consist of Lomas Serenas single family residential complex.

Noise-sensitive land uses within Segment 12 consist of single-family residential dwellings on the west side of I-15. The San Dieguito River Valley Regional Open Space Park is located along the south and north sides of Lake Hodges on the east and west sides of I-15 and contains trails for hikers, equestrians and bicyclists. The residences on the west side of I-15 are well above freeway grade and set back from the freeway, while the recreational land uses on the east and west sides are below the grade of I-15. Noise sources other than I-15 include aircraft (primarily rotary-wing) occasionally flying overhead from MCAS Miramar.

- **Segment 13: Del Lago Boulevard to Centre City Parkway (Approximate Length = 0.8 km [0.50 mile])**

Receptor Sites: 329, 330, 331, 1333, 333, 332, 207, 334, 1208, 208, 32, 1032, 1335-1, 209, 1209, 210, 335, 1335-2 (See Figure 2-22 and 2-23)

Receptors 329 through 333, and 1333 are located on the west side of I-15 just north of Del Lago Boulevard and consist of property approved for the Bernardo Santa Fe single family residential complexes. Receptors 207, 209, 1209, and 210 are located on the west side of I-15 just south of Centre City Parkway and consist of Single family residences and a multi-family residential complex. Receptors 334 is located in the portion of Kit Carson Park located next to I-15. Receptors 1208, 208, 32, 1032, 1335-1, 335, and 1335-2 are located on the east side of I-15 and consist of single family residential units.

Noise-sensitive land uses within Segment 13 consist of single-family residential on the east and west sides of I-15. The residences on the east side of I-15 are below freeway grade, while those on the west side are above freeway grade. Other land uses within Segment 13 includes vacant land.

- **Segment 14: Centre City Parkway to Felicita Avenue (Approximate Length = 2.3 km [1.43 mile])**

Receptor Sites: 211, 1211, 213, 212, 1214, 214, 33, 215, 1215, 216, 1216, 36A, 217A, 1218, 218A, 219, 1336, 336, 220, 1221, 221, 222, 1222, 223, 224 (See Figure 2-23 and 2-24)

Receptors 211, 1211, 215, 1215, 216, 1216, 36A, 217A, 1218, 218A, 219, and 224 are located on the west side of I-15 between Centre City Parkway and Felicita Avenue and consist of Single family residences.

Receptors 213, 212, 1214, 214, 33, 1336, 336, 220, 1221, 221, 222, 1222, and 223 are located on the east side of I-15 between Centre City Parkway and Felicita Avenue and consist of single-family residences.

Noise-sensitive land uses within Segment 14 consist of single-family residential on the east and west sides of I-15. Receivers in this area are located both below-grade and above-grade on both sides of I-15.

- **Segment 15: Felicita Avenue to 9th Avenue (Approximate Length = 1.9 km [1.18 mile])**

Receptor Sites: 1225A-1, 225A, 1125A-2, 39A, 1039, 39, 226, 1231, 227, 227A, 1227-1, 228, 1228-1, 1228-2, 229, 38, 1038, 230, 1230, 232, 231, 337, 338, 1338, 339, 1339, 340, 1233, 233A, 234, 37, 235, 1235, 341, 1341, 1041-2, 1041-1, 41A, 5008, 340A, 340B, 1340, 1342-1, 342B, 342A, 1342-2, 1343, 343, 1236, 236, 237, 1238, 238, 238A, 344, 5016, 1042-2, 1042-1, 42, 1042-3 (See Figure 2-25 and 2-26)

Receptors 1225A-1, 225A, 1125A-2, 39A, 1039, 39, 226, 1231, 232, 231, 337, 338, 1338, 1236, 236, 237, 1238, 238, 238A, and 344 are located on the west side of I-15 between Felicita Avenue and Ninth Avenue and consist of single-family residences. At the time of the study the area represented by receptors 339, 1339, 340, 340A, 340B, 1340, 1342-1, 342B, 342A, 1342-2, 1343, and 343 were under construction. This area currently consists of single-family residences. Receptors 227, 227A, 1227-1, 228, 1228-1, 1228-2, 38, 1038, 230, 1230, 1233, 233A, 234, 37, 235, 1235, 341, 1341, 1041-2, 1041-1, 41A, 5008, 5016, 1042-2, 1042-1, 42, and 1042-3 are located on the east side of I-15 between Centre City Parkway and Felicita Avenue and consist of single-family residences. Receptor 229 is located in the parking lot of the Bethel Baptist Church on the east side of I-15 between Centre City Parkway and Felicita Avenue.

Noise-sensitive land uses within Segment 15 consist of single-family residential on the east and west sides of I-15. Receivers in this area are located both below-grade and above-grade on both sides of I-15. Other land uses within Segment 15 include retail and commercial development.

3.7.2 Impacts

Traffic noise impacts are defined by the Department's Traffic Noise Analysis Protocol to occur when there is a substantial increase (12 dBA) in noise with the project or when the predicted noise levels from the project approach (1 dBA) or exceed the Noise Abatement Criteria (NAC).

Any location that has an after project noise level of 75 dBA or greater is considered severely impacted. The NAC is a FHWA criteria for noise assessment studies assigned to both exterior and interior activities based on various land uses. Figure 3-24 shows each of the sensitive land use types, the FHWA Noise Abatement Criteria, and the category each land use falls within. Traffic Noise Analysis Protocol (October 1998) defines approaching the NAC as being within 1 dBA. For category B land uses, such as residences, this means that the predicted noise level approaches the NAC if the predicted noise level is 66 dBA.

Existing noise levels are measured using sound meters at sensitive receptors. The noise levels are measured using a Larson-Davis 820 or a Metrosonics db-308 Community Noise Analyzer, which are calibrated before and after field measurements. Relative accuracy was confirmed by comparing noise level readings from both meters when used at the same time and location. The future peak traffic noise levels are predicted using the Department's Sound 32 computer model. Inputs into the traffic model include roadway geometry, receptor locations, and traffic data. The models include traffic volumes that would produce the highest peak hour noise levels. From the measurements gathered in the field, noise levels at other sites having similar topography to those measured were predicted using the Sound 32 model. In total, 374 receptors were modeled. The existing noise levels are compared to future predicted noise levels to determine if the project will have noise impacts. If a sensitive receptor will be impacted by noise, then noise abatement must be considered for that location. This includes modeling sound barrier locations, lengths, and heights.

The modeling showed that 188 of 374 noise-sensitive receivers approached or exceeded the NAC and were thus impacted. Following is a discussion of noise impacts associated with the proposed project.

Following is a discussion of noise impacts associated with the proposed project.

- **Segment 1: Miramar Road / Pomerado Road (southern crossing) to Carroll Canyon Road**

As presented in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 3 decibels above existing noise levels, which range from 65 to 69 dBA L_{eq} . Future noise levels without noise abatement would range from 67 to 72 dBA L_{eq} at the representative noise-sensitive modeled receptors. All of the 6 modeled receptors within segment 1 would approach or exceed the NAC.

- **Segment 2: Carroll Canyon Road to Mira Mesa Boulevard**

As Table 3-6 shows, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 1 to 5 decibels above existing noise levels, which range from 64 to 74 dBA L_{eq} . Future noise levels without noise abatement would range from 68 to 78 dBA L_{eq} at the representative modeled receptors. Twelve of the 14 modeled receptors would approach or exceed the NAC.

- **Segment 3: Mira Mesa Boulevard to Scripps Poway Parkway / Mercy Road**

As shown in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 2 decibels above existing noise levels, which range from 53 to 82 dBA L_{eq} .

Future noise levels without noise abatement would range from 59 to 83 dBA L_{eq} at the representative modeled receptors. Of the 25 modeled receptors, 6 would approach or exceed 67 dBA L_{eq} . The noise levels at the 8 noise-sensitive receptors on the west side of I-15 within Segment 3 would be below the NAC. On the east side of I-15, 6 of the modeled receptors would approach or exceed the NAC. At this location there were receptors that have no outdoor areas of frequent human use that would benefit from a reduced noise level. At these locations interior measurements were taken. For these receptors that are affected by the traffic noise, the interior criterion of 52 dBA L_{eq} is applicable. Based upon the modeled future peak-noise-hour levels at these receptors, the 24-hour interior noise levels would likely range from 45 to 55 dBA, which would exceed the interior NAC of 52 dBA as established for Category E. Thus, the project would have a noise impact at these receptors.

Within the same area, several noise measurements were conducted inside the enclosed patio areas that are shielded from I-15 by the residential structures. The noise levels for these patio areas ranged from 62 to 64 dBA L_{eq} , as shown in Table 2-1B. Based upon the long-term noise measurements, existing peak-noise-hour levels would be approximately 1 decibel higher, 63 to 65 dBA L_{eq} . Based upon a typical increase in future noise levels in this area of 1 decibel, future peak-noise-hour levels in the patio areas would be approximately 64 to 66 dBA L_{eq} . Those receptors at 66 dBA would be considered impacted.

- **Segment 4: Scripps Poway Parkway / Mercy Road to Poway Road / Rancho Penasquitos Boulevard**

As shown in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 1 to 3 decibels above existing noise levels, which range from 54 to 73 dBA L_{eq} . Future noise levels without noise abatement would range from 58 to 76 dBA L_{eq} at the representative modeled receptors. Of the 18 modeled receptors, 12 would approach or exceed the NAC.

At receptor 124A, there is a predicted noise level (76 dBA L_{eq}) that is defined in the Noise Protocol as a "severe traffic noise impact," thus, qualifying it for other forms of abatement as discussed in section 3.7.3: Noise Abatement.

- **Segment 5: Poway Road / Rancho Penasquitos Boulevard to SR-56 / Ted Williams Parkway**

As shown in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 2 decibels above existing noise levels, which range from 57 to 63 dBA L_{eq} . Future noise levels without noise abatement would range from 59 to 65 dBA L_{eq} at the representative modeled receptors. Of the 9 modeled receptors, 1 would approach the NAC. The noise level at Receptor 5 is expected to be 66 dBA L_{eq} during the peak-noise-hour.

- **Segment 6: SR-56 / Ted Williams Parkway to Carmel Mountain Road**

As shown in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 2 to 10 decibels above existing noise levels, which range from 57 to 73 dBA L_{eq} . Future noise levels without noise abatement would range from 61 to 77 dBA L_{eq} at the representative modeled receptors. Of the 50 modeled receptors, 36 would approach or exceed the NAC. Receptor 313 is a commercial site that since the time of the noise measurements has been developed with a supermarket that does not have an exterior use other than for parking and is, therefore, not a noise-sensitive land use. Receptor 132 is also not a noise-sensitive location; it is at the fence line of a residential area, but it does not represent an area of frequent human use and is, therefore, not considered a sensitive receptor. Receptors 1133-2, 1134, 1135-2, and 136 would be considered severely impacted since the receptors would exceed 75 dBA qualifying them for other forms of abatement as discussed in Section 3.7.3: Noise Abatement.

- **Segment 7: Carmel Mountain Road to Camino del Norte**

As shown in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 1 to 8 decibels above existing noise levels, which range from 51 to 71 dBA L_{eq} . Future noise levels without noise abatement would range from 53 to 73 dBA L_{eq} at the representative modeled receptors. Of the 19 modeled receptors, 9 would approach or exceed the NAC.

- **Segment 8: Camino del Norte to Bernardo Center Drive (southern crossing)**

As presented in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 3 decibels above existing noise levels, which range from 53 to 72 dBA L_{eq} . Future noise levels without noise abatement would range from 58 to 74 dBA L_{eq} at the representative modeled receptors. Of the 49 modeled receptors, 39 would approach or exceed the NAC.

- **Segment 9: Rancho Bernardo Road to Bernardo Center Drive (northern crossing) / Duenda Road**

As shown in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 2 decibels above existing noise levels, which range from 59 to 72 dBA L_{eq} . Future noise levels without noise abatement would range from 64 to 74 dBA L_{eq} at the representative modeled receptors. Of the 22 modeled receptors, 12 would approach or exceed the NAC.

- **Segment 10: Bernardo Center Drive (northern crossing) / Duenda Road to Green Valley Creek Bridge**

As listed in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 3 decibels above existing noise levels, which range from 54 to 76 dBA L_{eq} .

Future noise levels without noise abatement would range from 58 to 78 dBA L_{eq} at the representative modeled receptors. Of the 29 modeled receptors, 12 would approach or exceed the NAC. Receptors 192, 320, 26 and 319 are areas where measurements were taken in parking structures or at the end of cul-de-sacs. These areas are not representative of noise-sensitive land uses, and thus are not considered as sites approaching or exceeding the NAC

Receptor 1192 is located at a church. The area immediately between the church and I-15 is a parking lot. As shown in Table 3-6, the predicted future exterior noise level at receptor 1192 is 67 dBA L_{eq} . Because no noise-sensitive exterior uses take place at this location, the relevant NAC is 52 dBA L_{eq} interior (Activity Category E). Typical modern construction assemblies for buildings provide a minimum of 20 dBA (usually 22 to 24 dBA) of outdoor/indoor noise attenuation with doors and windows closed. Based on this 20 dBA noise attenuation, the interior noise level in the church would be about 47 dBA L_{eq} , which is below the NAC for Activity Category E.

- **Segment 11: Green Valley Creek Bridge to Bernardo Drive / Pomerado Road (northern crossing)**

As shown in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 4 decibels above existing noise levels, which range from 60 to 77 dBA L_{eq} . Future noise levels without abatement would range from 63 to 79 dBA L_{eq} at the representative receptors. Of the 24 modeled receptors, 16 would approach or exceed the NAC. Receptors 1031A-1, , 31A, 31B and 201 would be considered severely impacted since the noise level exceeds 75 dBA qualifying them for other forms of abatement as discussed in Section 3.7.3: Noise Abatement.

- **Segment 12: Bernardo Drive / Pomerado Road to Via Rancho Parkway**

As provided in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 2 decibels above existing noise levels, which range from 57 to 72 dBA L_{eq} . Future noise levels without noise abatement would range from 61 to 72 dBA L_{eq} at the representative modeled receptors. Of the 16 modeled receptors, 10 would approach or exceed the NAC.

- **Segment 13: Del Lago Boulevard to Centre City Parkway**

As shown in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 3 decibels above existing noise levels, which range from 47 to 77 dBA L_{eq} . Future noise levels without noise abatement would range from 51 to 79 dBA L_{eq} at the representative modeled receptors. Of the 18 modeled receptors, 5 would approach or exceed the NAC. Receptor 210 would be severely impacted qualifying it for other forms of abatement as discussed in Section 3.7.3: Noise Abatement.

Receptor 333 was measured for information about the project area's general noise environment and is not representative of a noise-sensitive land use. Thus, this site is not considered a sensitive receptor. Receptor 1333 is a better representative of noise-sensitive use in this area.

- **Segment 14: Centre City Parkway to Felicita Avenue**

As presented in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 3 decibels above existing noise levels which range from 53 to 72 dBA L_{eq} . Future noise levels without noise abatement would range from 56 to 75 dBA L_{eq} at the representative modeled receptors. Of the 25 modeled receptors, 12 would approach or exceed the NAC. Receptor 223 would be considered severely impacted since without abatement it would be at 75 dBA qualifying it for other forms of abatement as discussed in Section 3.7.3: Noise Abatement.

- **Segment 15: Felicita Avenue to 9th Avenue**

As shown in Table 3-6, unabated future peak-noise-hour levels at noise-sensitive land uses are predicted to increase 0 to 5 decibels above existing noise levels which range from 52 to 77 dBA L_{eq} . Future noise levels without noise abatement would range from 55 to 81 dBA L_{eq} at the representative modeled receptors. Of the 60 modeled receptors, 50 would approach or exceed the NAC. Receptors 230, 235, 341, and 1341 would be severely impacted. Receptors 236 and 42 are not considered noise-sensitive land uses, and thus not subject to the NAC.

3.7.3 Noise Abatement

According to the Department's *Traffic Noise Analysis Protocol* (October 1998), noise abatement measures must be found to be both reasonable and feasible before they can be included as project features. Feasibility is based on acoustical considerations. To be feasible, the proposed abatement measure must reduce the predicted noise level at least 5 dBA. Feasibility may also be affected by physical constraints such as topography, driveways, ramps, cross streets, other noise sources in the area, and safety considerations. Whether a noise abatement measure is considered reasonable is based on a variety of factors including: cost of abatement, noise abatement benefits, community acceptance, and other social, economic, environmental, legal, and technological factors. Because some proposed noise abatement measures are determined not to be reasonable and feasible the increased noise levels in some areas will not be attenuated. Under FHWA guidance, the Department is responsible for the costs of any reasonable and feasible noise barriers at the time of freeway construction. The Department is not responsible for noise abatement for potential future receptors, unless the development is planned, designed, and programmed as of the approval date of the final environmental document.

Abatement measures for second story impacts are not normally considered reasonable or feasible. Barrier heights would require substantial increases in height to break the line of sight for second stories. In addition, increased noise barrier heights would create added visual impacts in areas that have views. Abatement measures are generally not proposed in areas that do not have existing sensitive land uses, or at sites that are generally shielded by other receptors. Shielded sites normally would have an approximate 10 dBA reduction in the predicted future noise levels.

The "Reasonable/Feasible Analysis of Noise Abatement for Proposed Interstate 15 Managed Lanes Project In San Diego County (Reasonable/Feasible Analysis)", dated September 1, 2002, analyzed each abatement measure from the Noise Study Report by calculating a specific cost for each measure. This cost was then compared to the reasonable cost allowance, which is calculated based on a formula set forth in the Department's Noise Protocol (October 1998). In the time between the Reasonable/Feasible Analysis and the Noise Report, the base allowance set forth in the protocol for each noise abatement measure was increased by \$2000: the analysis discussed here used the increased base allowance. If the total construction costs for a proposed barrier is equal to or less than the calculated reasonable cost allowance, then the proposed barrier is deemed to be a reasonable cost expenditure.

Costs included in determining the total construction costs for an abatement measure include construction and maintenance easements, required removal or relocation of any existing features or utilities, required foundation work, and any supporting structures such as retaining walls that are necessary solely for construction of the barrier.

Noise abatement was considered for all impacted sensitive receivers. For those receptors that were identified as being severely impacted, other abatement would be considered to help abate the impact. Along the project corridor there are eight barrier locations that are predicted to experience noise levels of 75 dBA or more which would categorize their noise impacts as severe. At three of these locations, barriers are being recommended to address the severe traffic noise impacts. At the remaining five locations, where it is not possible to reduce predicted noise levels below 75 dBA with a noise barrier or the feasible barrier is not reasonable, construction of the unreasonable wall, installation of double-paned windows, acoustic wall insulation and air conditioning is being proposed to abate the severe noise impacts. Abatement measures to address the severe noise impacts will need to be approved by FHWA on a case-by-case basis in accordance with the Protocol.

Proposed abatement is based on preliminary designs. If during final project design the conditions change substantially, the abatement may be changed or not provided so long as there is no major change in impact conclusions. A final decision on barrier specifics will be made based on the final design noise analysis and based on community acceptance. Following is a discussion of the noise barriers considered in the “Reasonable/Feasible Analysis of Noise Abatement for Proposed Interstate 15 Managed Lanes Project In San Diego County (Reasonable/Feasible Analysis).”

In addition, Table 3-6: Noise Impacts, shows effective noise wall heights and locations as determined by the Noise Study Report. Noise abatement locations are shown on the project feature maps, Figure 2-1 through 2-28, as white lines with overlapping white diamonds.

- **Segment 1: Miramar Road / Pomerado Road (southern crossing) to Carroll Canyon Road**

The Noise Study Report recommended a 4.88 meter (16 foot) wall. This barrier was recommended on the southbound (west) side of I-15 extending from Carroll Canyon Road south for approximately 400 meters (1312 feet). It was discovered that the proposed wall would cut off a main driveway along Carroll Canyon Road.

It was determined in the Reasonable/Feasible Analysis that most receptors could achieve the 5 dBA reduction with a lower wall. Due to these conditions, a 3.05 meter (10 foot) wall on top of a 1.83 meter (6 foot) berm was recommended to extend for a shorter distance. This barrier would begin 400 meters (1312 feet) south of Carroll Canyon Road extending to the north 100 meters (328 feet).

This newly proposed barrier would benefit eight residences and would cost \$388,000, which includes the cost of the wall itself and the cost of a retaining wall required to support the barrier.

This wall is considered not reasonable based on the protocol allowance of \$189,000. However, the barrier would be constructed since all of the residences receive a 2-5 dBA noise level reduction by this lower wall. The wall would be constructed with State only funds.

- **Segment 2: Carroll Canyon Road to Mira Mesa Boulevard**

The Noise Study Report recommended a 2.44 meter (8 foot) to 4.88 meter (16 foot) wall that varied between the edge of shoulder and the right-of-way line. This barrier was recommended to be placed on the southbound (west) side of I-15 and extends from Carroll Canyon Road north for 740 meters (2460 feet).

It was determined in the Reasonable/Feasible Analysis that all but two receptors (1105, 105A) could achieve the 5 dBA reduction with a lower wall. Because of this, the Reasonable/Feasible Analysis recommended that a 2.44 meter (8 foot) to 3.05 meter (10 foot) wall be built. This barrier would benefit 30 residences and would cost \$512,000 including construction costs. This cost was found to be reasonable and the proposed barrier would be constructed as part of the project.

- **Segment 3: Mira Mesa Boulevard to Scripps Poway Parkway / Mercy Road**

The Noise Study Report for this project considered walls at three locations. In order to expedite any proposed construction of these walls and to potentially abate the existing high noise levels, these walls were analyzed as part of the I-15 Added/Auxiliary Lanes Project, which is currently under construction.

The reasonable and feasible analysis for these barriers was included in the *Reasonable/Feasible Analysis of Noise Abatement for Proposed Interstate 15 Added/Auxiliary Lanes and Improvements Located Between Miramar Road and Mercy Road in San Diego County*, dated March 29, 2002.

As part of this analysis, it was determined that one of the proposed barriers was reasonable. The barrier is a 3.66 meter (12 foot) wall that would begin approximately 500 meters (1640 feet) north of Mira Mesa Boulevard and would extend to the north approximately 350 meters (1148 feet).

The barrier would be located along the northbound (east) side of I-15 and would benefit 10 residences. The barrier cost of \$269,000 includes all associated construction costs. This barrier is reasonable since it is equal to the Protocol allowance of \$269,000. It will be constructed as part of the I-15 Auxiliary/Added Lanes Project that received separate NEPA/CEQA approval in March 2002.

- **Segment 4: Scripps Poway Parkway / Mercy Road to Poway Road / Rancho Penasquitos Boulevard**

Within this segment, the Noise Study Report considered two barriers in two different locations. Following is a description of each of these walls.

The first wall is a 3.05 to 4.27 meter (10 to 14 foot) high wall that would begin approximately 100 meters (328 feet) south of Scripps Poway Parkway/Mercy Road on the southbound (west) side of I-15 and would extend north over the Mercy Road overcrossing for a distance of approximately 1000 meters (3280 feet). The barrier cost of \$962,000 includes all associated construction costs.

Receptors 305 and 306 do not constitute areas of frequent human use as they are garages. Based on this analysis, the number of benefited residents for this wall is 46. This wall was found to be reasonable and feasible and would be constructed as part of the proposed project.

The second barrier is a 3.05 meter (10 foot) high wall that would be located approximately 400 meters (1312 feet) south of Poway Road/Rancho Penasquitos and extending to the intersection. The wall would be located at the property line and extending onto private property. The proposed barrier would benefit 17 residences at a cost of \$762,000. The wall is not considered reasonable since it exceeds the Protocol allowance of \$561,000. The proposed barrier would not be constructed as part of the project. If the required easement is donated to the State this barrier becomes reasonable to construct.

For the severely impacted residences represented by receptor 124A, other forms of abatement would be investigated for each property during the design phase of the project.

- **Segment 5: Poway Road / Rancho Penasquitos Boulevard to SR-56 / Ted Williams Parkway**

A 4.27 meter (14 foot) high wall was identified in the Noise Study Report and Reasonable/Feasible Analysis. It would be located on the southbound (west) side of I-15, approximately 600 meters (1968 feet) south of the SR-56/Ted Williams Parkway and would extend north approximately 150 meters (490 feet).

The barrier cost of \$174,000 includes the cost of a needed maintenance easement and the cost of removing an existing 2.44 meter (8 foot) sound wall. This barrier would benefit four residences.

This barrier is not reasonable since it exceeds the protocol allowance of \$124,000. If the easement were donated to the State, the wall would still exceed the cost allowance. The proposed barrier would not be constructed as part of the project.

- **Segment 6: SR-56 / Ted Williams Parkway to Carmel Mountain Road**

The Noise Study Report considered four different wall locations. In order to expedite any proposed construction of these walls and to potentially abate the existing noise levels, these walls were analyzed as part of the I-15 Added/Auxiliary Lanes Project, which is currently under construction. The reasonable and feasible analysis for these barriers was included in the *Reasonable/Feasible Study of Noise Abatement for Proposed Interstate 15 Added/Auxiliary Lanes and Improvements at The State Route 56 Interchange in San Diego County, April 2001*.

As part of this analysis, it was determined that one of the proposed barriers was reasonable. The barrier is a 2.44 meter (8 foot) to 4.27 meter (14 foot) berm with a Type 1 retaining wall located on the southbound (west) side of I-15 that would begin approximately 400 meters (1312 feet) north of SR-56 and would extend to the north approximately 1000 meters (3280 feet). The barrier cost of \$1,750,000 includes all associated construction costs. This barrier will benefit 22 residences. This barrier is reasonable since it falls below the Protocol allowance of \$2,072,000. It will be constructed as part of the I-15 Auxiliary/Added Lanes Project.

- **Segment 7: Carmel Mountain Road to Camino del Norte**

The Noise Study Report and Reasonable Feasible Analysis considered two different barrier locations within this segment.

The first barrier is a 4.27 meter (14 foot) wall located on the southbound (west) side of I-15 approximately 600 meters (1968 feet) south of Camino del Norte. The wall would be located along the property lines of the residences and would be approximately 300 meters (984 feet) in length. The proposed wall would benefit 15 residences and would cost \$650,000. Since it exceeds the Protocol allowance of \$495,000, this wall is not included in the proposed project.

The second barrier is a 4.27 meter (14 foot) high wall that would be located on the southbound (west) side of I-15 beginning approximately 300 meters (984 feet) north of Carmel Mountain Road and ending approximately 600 meters (1968 feet) south of Camino del Norte. The receptors GC1 through GC5 are located on a privately owned golf course.

Golf course use is transient in nature and would not subject any user to a long duration of noise exposure. Therefore, noise abatement is not considered at this location.

However, a 2.44 meter (8 foot) berm/wall combination is proposed at this location as a project feature that would replace the existing berm that would be taken out during construction. This proposed berm/wall combination will be constructed to dispose of surplus material from the excavation on the project.

- **Segment 8: Camino del Norte to Bernardo Center Drive (southern crossing)**

Within this segment, the Noise Study Report and Reasonable/Feasible Analysis considered barriers at seven locations. Following is a description of each of these barriers.

The first barrier is a 4.27 meter (14 foot) wall that would be located on the southbound (west) side of I-15 beginning at Camino del Norte and extending to the north approximately 400 meters (1312 feet) along the edge of shoulder. The proposed barrier would benefit 14 residences and would cost \$588,000. This wall is not considered reasonable since it exceeds the Protocol allowance of \$266,000. This barrier would not be constructed as part of the project.

The second barrier is a 3.05 meter (10 foot) wall that would be located on the southbound (west) side of I-15 beginning approximately 250 meters (820 feet) north of Camino del Norte and would extend approximately 1100 meters (3608 feet) to the north along the property line of the residences overlooking the freeway. The proposed barrier would benefit 40 residences and would cost \$1,678,000. The wall is not considered reasonable since it exceeds the Protocol allowance of \$920,000. The cost of this barrier is based on the wall, the cost of a maintenance easement, and the cost to remove an existing 1.83 meter (6 foot) sound wall. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier would not be constructed as part of the project.

The third barrier is a 3.66 meter (12 foot) wall that would be located on the northbound (east) side of I-15 that extends from approximately 150 meters (492 feet) north of Camino del Norte to approximately 100 meters (328 feet) to the north along the property line of the residences overlooking the freeway. The proposed barrier would benefit six residences and would cost \$310,000. The wall is not considered reasonable since it exceeds the Protocol allowance of \$150,000. The cost of this barrier is based on the wall itself, the cost of a maintenance easement, and the cost to remove an existing 1.83 meter (6 foot) sound wall. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier would not be constructed as part of the project.

The fourth barrier is a 3.05 meter (10 foot) to 3.66 meter (12 foot) wall located on the northbound (east) side of I-15 that would begin approximately 400 meters (1312 feet) north of Camino del Norte and would extend north approximately 500 meters (1640 feet) along the property line of the residences overlooking the freeway. The proposed barrier would benefit 17 residences and would cost \$779,000. The wall is not considered reasonable since it exceeds the Protocol allowance of \$391,000. The cost of this barrier is based on the wall itself, the cost of a maintenance easement, and the cost to remove an existing 1.83 meter (6 foot) sound wall. Even if the easement were donated to the State the wall would still exceed the cost allowance. This barrier would not be constructed as part of the project.

The fifth barrier is a 3.05 meter (10 foot) high wall that would be located on the northbound (east) side of I-15 that would begin approximately 700 meters (2296 feet) south of Bernardo Center Drive and would extend north approximately 300 meters (984 feet) along the property line of the residences overlooking the freeway. The proposed barrier would benefit 16 residences and would cost \$343,000. The wall is considered reasonable since it is below the Protocol allowance of \$400,000. The cost of this barrier includes the cost of a maintenance easement, and the cost to remove an existing 1.83 meter (6 foot) sound wall. This barrier would be constructed as part of the project.

The sixth barrier is a 4.27 meter (14 foot) to 4.88 meter (16 foot) wall that would be located on the northbound (east) side of I-15 that would begin approximately 550 meters (1804 feet) south of Bernardo Center Drive and would extend north approximately 200 meters (656 feet) along the property line of the residences overlooking the freeway. The proposed barrier would benefit 15 residences and would cost \$400,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$345,000. The cost of this barrier includes the cost of a maintenance easement, the cost to remove an existing 1.83 meter (6 foot) sound wall, and the cost of removing an existing 0.65 meter (2 foot) retaining wall. The retaining wall would have to be removed since it would not support the proposed wall. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier would not be constructed as part of the project.

The seventh barrier is a 3.66 meter (12 foot) wall that would be located on the northbound (east) side of I-15 that would begin approximately 350 meters (1148 feet) south of Bernardo Center Drive and would extend to the north approximately 300 meters (984 feet) along the property line of the residences overlooking the freeway. The proposed barrier would benefit nine residences and would cost \$487,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$189,000. The cost of this barrier includes the cost of a maintenance easement, and the cost to remove an existing 1.83 meter (6 foot) sound wall. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier would not be constructed as part of the project.

- **Segment 9: Rancho Bernardo Road to Bernardo Center Drive (northern crossing) / Duenda Road**

The proposed barrier is a wall whose height would vary between 3.05 meters (10 feet) and 4.27 meters (14 feet) located on the northbound (east) side of I-15 along the property line of the residences overlooking the freeway. The wall would begin approximately 300 meters (984 feet) north of Rancho Bernardo Road and would extend to Bernardo Center Drive/Duenda Road. The proposed barrier would benefit 32 residences and would cost \$853,000. The wall is considered not reasonable since it exceeds the protocol allowance of \$736,000. The cost of this barrier is based on the wall itself, the cost of a maintenance easement, and the cost to remove an existing 1.83 meter (6 foot) sound wall. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier will not be constructed as part of the project.

- **Segment 10: Bernardo Center Drive (northern crossing) / Duenda Road to Green Valley Creek Bridge**

The Noise Study Report and Reasonable Feasible Analysis considered two different barrier locations within this segment.

The first barrier is a 4.27 meter (14 foot) high wall located on the southbound (west) side of I-15 that would begin approximately 100 meters (328 feet) north of Bernardo Center Drive/Duenda Road and would extend north approximately 300 meters (984 feet) along the right of way .

The proposed barrier would benefit three residences and would cost \$309,000; thus, it is considered not reasonable since it exceeds the Protocol allowance of \$87,000. This barrier will not be constructed as part of the project.

The second barrier varies from 4.27 meters (14 feet) to 4.88 meters (16 feet) in height located on the northbound (east) side of I-15, that would begin at Bernardo Center Drive/Duenda Road and would extend north approximately 550 meters (1804 feet) along the property line of residences overlooking the freeway. The proposed barrier would benefit 25 residences and would cost \$830,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$525,000. The cost of this barrier is based on the wall itself, the cost of a maintenance easement, and the cost to remove an existing 1.83 meter (6 foot) sound wall. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This Barrier will not be constructed as part of the project.

- **Segment 11: Green Valley Creek Bridge to Bernardo Drive / Pomerado Road (northern crossing)**

The Noise Study Report and Reasonable Feasible Analysis considered three different barrier locations within this segment. Following is a description of each of these barriers.

The first is a wall with a height that would vary between 3.05 meter (10 foot) and 4.27 meters (14 feet) in height and would be located on the southbound (west) side of I-15 along the property line of the residences overlooking the freeway. The wall would begin approximately 300 meters (984 feet) south of Bernardo Drive and extends south approximately 300 meters (984 feet). The proposed barrier would benefit 14 residences and would cost \$505,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$322,000.

The cost of this barrier is based on the wall itself, the cost of a maintenance easement, and the cost to remove an existing 1.22 meter (4 foot) wall. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier will not be constructed as part of the project.

For the severely impacted residences represented by receptors 1031A-1, 1031A-2, 31A and 201, other forms of abatement would be investigated for each property during the design phase. Abatement measures for these receptors will be contingent upon approval by FHWA.

The second is a wall with a height that would vary between 3.66 meters (12 foot) and 4.27 meters (14 foot) in height and would be located on the northbound (east) side of I-15 along the property line of residences overlooking the freeway. The wall would begin approximately at Pomerado Road/Bernardo Drive and would extend south approximately 1000 meters (3280 feet). The proposed barrier would benefit 32 residences and would cost \$1,207,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$608,000. The cost of this barrier is based on the wall itself, the cost of a maintenance easement, and the cost to remove an existing 1.83 meter (6 foot) wall. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier will not be constructed as part of the project.

The third barrier is a 4.88 meter (16 foot) high wall that would be located on the southbound (west) side of I-15. The wall would begin approximately 400 meters (1312 feet) south of Bernardo Drive and would extend south approximately 800 meters (2624 feet). The proposed barrier would benefit 12 residences and would cost \$854,000 and is considered not reasonable since it exceeds the protocol allowance of \$252,000. This barrier will not be constructed as part of the project.

- **Segment 12: Bernardo Drive / Pomerado Road to Via Rancho Parkway**

The Noise Study Report and Reasonable Feasible Analysis considered three different barrier locations within this segment. Following is a description of each of these barriers.

The first wall would vary in height from 3.05 meters (10 feet) to 4.27 meters (14 feet) and would be located on the northbound (east) side of I-15. The wall would begin at the northbound side of the Lake Hodges Bridge and would extend north approximately 700 meters (2296 feet).

This area is not considered an area of frequent human use that would benefit from a reduced noise level; therefore, this barrier will not be constructed as part of the project.

The second barrier is a 4.88 meter (16 foot) high wall that would be located on the southbound (west) side of I-15. The wall would begin at the northbound side of the Lake Hodges Bridge and would extend north approximately 250 meters (820 feet). However, this is not considered an area of frequent human use that would benefit from a reduced noise level. Therefore, this barrier will not be constructed as part of the project.

The third barrier is a 3.05 meter (10 foot) high wall that would be located on the southbound (west) side of I-15. The wall would begin approximately 300 meters (984 feet) north of the Lake Hodges Bridge and would extend north approximately 50 meters (1.5 feet). The wall is located along the property line of the residence overlooking the freeway.

The wall would benefit one residence and would cost \$49,000; thus, it is considered not reasonable since it exceeds the Protocol allowance of \$21,000. The cost of this barrier is based on the wall itself and the cost of a maintenance easement. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier will not be constructed as part of the project.

- **Segment 13: Del Lago Boulevard to Centre City Parkway**

The Noise Study Report and Reasonable Feasible Analysis considered two different barrier locations within this segment. Following is a description of each of these barriers.

The first barrier is a 4.88 meter (16 foot) wall that would be located on the northbound (east) side of I-15. The wall would begin approximately 100 meters (328 feet) north of Del Lago Boulevard and would extend north approximately 200 meters (656 feet) along the edge of shoulder. The proposed barrier would benefit two residences and would cost \$244,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$42,000. This barrier will not be constructed as part of the project.

The second barrier is a 4.88 meter (16 foot) wall that would be located on the southbound (west) side of I-15. The wall would begin just south of Centre City Parkway and would extend to the south approximately 100 meters (328 feet). The proposed barrier would benefit one residence and would cost \$78,000.

The wall is considered not reasonable since it exceeds the Protocol allowance of \$25,000. This barrier will not be constructed as part of the project. For the severely impacted residences represented by receptor 210, other forms of abatement would be investigated for each property during the design phase. Abatement measures for these receptors will be contingent upon approval by FHWA

- **Segment 14: Centre City Parkway to Felicita Avenue**

The Noise Study Report and Reasonable Feasible Analysis considered eight different barrier locations within this segment. Following is a description of each of these barriers.

The first barrier is a 3.66 meter (12 foot) high wall that would be located on the southbound (west) side of I-15 along the edge of shoulder. The wall would begin approximately at Centre City Parkway and would extend to the north approximately 200 meters (656 feet). The proposed barrier would benefit two residences and would cost \$188,000. This wall is considered not reasonable since it exceeds the Protocol allowance of \$46,000. This barrier will not be constructed as part of the project.

The second barrier is a 4.88 meter (16 foot) high wall that would be located on the northbound (east) side of I-15. The wall would begin approximately 250 meters (820 feet) north of Centre City Parkway and would extend to the north approximately 50 meters (164 feet) along the right of way.

The proposed barrier would benefit one residence and would cost \$73,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$19,000. This barrier will not be constructed as part of the project.

The third barrier is a 4.27 meter (14 foot) high wall that would be located on the northbound (east) side of I-15. The wall would begin approximately 600 meters (1968 feet) north of Centre City Parkway and would extend to the north approximately 50 meters (164 feet) along the right of way. The proposed barrier would benefit one residence and would cost \$85,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$19,000. This barrier will not be constructed as part of the project.

The fourth barrier is a 3.66 meter (12 foot) high wall that would be located on the northbound (east) side of I-15. The wall would begin approximately 650 meters (2132 feet) north of Centre City Parkway and would extend to the north approximately 50 meters (164 feet) along the property line of residences adjacent to the freeway. The proposed barrier would benefit one residence and would cost \$77,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$22,000. The cost of this barrier is based on the wall itself and the cost of a maintenance easement. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier will not be constructed as part of the project.

The fifth barrier is a 4.88 meter (16 foot) high wall that would be located on the northbound (east) side of I-15. The wall would begin approximately 400 meters (1312 feet) south of Citracado Parkway and would extend south approximately 150 meters (492 feet) along the right of way. The proposed barrier would benefit two residences and would cost \$202,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$74,000. This barrier will not be constructed as part of the project.

For the severely impacted residences represented by receptor 223, other forms of abatement would be investigated for each property during the design phase. Abatement measures for these receptors will be contingent upon approval by FHWA

The sixth barrier is a 3.05 meter (10 foot) high wall that would be located on the southbound (west) side of I-15. The wall would begin approximately 400 meters (1312 feet) north of Centre City Parkway and would extend north approximately 50 meters (164 feet) along the property line of the residences adjacent to the freeway. The proposed barrier would benefit one residence and would cost \$53,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$21,000. The cost of this barrier is based on the wall itself and the cost of a maintenance easement. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier will not be constructed as part of the project.

The seventh barrier is a 4.27 meter (14 foot) high wall that would be located on the southbound (west) side of I-15. The wall would begin approximately 700 meters (2296 feet) north of Centre City Parkway and would extend north approximately 50 meters (164 feet) along the property line of residences adjacent to the freeway. The proposed barrier would benefit one residence and would cost \$106,000.

The wall is considered not reasonable since it exceeds the Protocol allowance of \$29,000. The cost of this barrier is based on the wall itself and the cost of a maintenance easement. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier will not be constructed as part of the project.

The eighth barrier is a 3.05 meter (10 foot) high wall that would be located on the southbound (west) side of I-15. The wall would begin approximately 500 meters (1640 feet) north of Centre City Parkway and would extend north approximately 50 meters (164 feet) along the property line of residences adjacent to the freeway. The proposed barrier would benefit one residence and would cost \$46,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$33,000. The cost of this barrier is based on the wall itself and the cost of a maintenance easement. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier will not be constructed as part of the project.

- **Segment 15: Felicita Avenue to 9th Avenue**

The Noise Study Report and Reasonable Feasible Analysis considered eight different barrier locations within this segment. Following is a description of each of these barriers.

The first barrier is a 4.88 meter (16 foot) high wall that would be located on the northbound (east) side of I-15. The wall would begin approximately at Citracado Parkway and would extend to the north approximately 400 meters (1312 feet) along the edge of shoulder.

The proposed barrier would benefit 11 residences and would cost \$415,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$363,000. This barrier will not be constructed as part of the project.

The second wall height would vary from 4.27 meters (14 feet) to 4.88 meters (16 feet) and would be located on the northbound (east) side of I-15. The wall would begin approximately 550 meters (1804 feet) north of Citracado Parkway and would extend to the north approximately 550 meters (1804 feet) along the right of way. The proposed barrier would benefit six residences and would cost \$649,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$210,000. This barrier will not be constructed as part of the project. For the severely impacted residences represented by receptor 230, 235, 341, and 1341, other abatement measures would be investigated for each property during the design phase. Abatement measures for these receptors will be contingent upon approval by FHWA

The third wall height would vary from 3.05 meters (10 feet) to 3.66 meters (12 feet) and would be located on the northbound (east) side of I-15. The wall would begin approximately 1100 meters (3608 feet) north of Citracado Parkway and would extend to the north approximately 200 meters (656 feet) along the property line of residences adjacent to the freeway. The proposed barrier would benefit nine residences and would cost \$376,000. The third wall is considered not reasonable since it exceeds the Protocol allowance of \$225,000. The cost of this barrier is based on the wall itself, the cost of a maintenance easement, and the cost to remove an existing 2.44 meter (8 foot) wall. Even if the easement were donated to the State, the wall would still exceed the cost allowance. This barrier will not be constructed as part of the project.

The fourth wall height would vary from 1.83 meters (6 feet) to 4.27 meters (14 feet) and would be located on the northbound (east) side of I-15. The wall would begin approximately 550 meters (1804 feet) south of Ninth Avenue and would extend north approximately 250 meters (820 feet) along the right of way. The proposed barrier would benefit one residence and would cost \$152,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$31,000. This barrier will not be constructed as part of the project.

The fifth wall height would vary from 4.27 meters (14 feet) to 4.88 meters (16 feet) and would be located on the southbound (west) side of I-15. The wall would begin approximately at Citracado Parkway and would extend to the north approximately 450 meters (1476 feet) along the right of way and edge of shoulder. The proposed barrier would benefit six residences and would cost \$537,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$210,000. This barrier will not be constructed as part of the project.

The sixth barrier is a 4.27 meter (14 foot) high wall that would be located on the southbound (west) side of I-15. The wall would begin approximately at Ninth Avenue and would extend to the south approximately 300 meters (984 feet) along the edge of shoulder. The proposed barrier would benefit 10 residence and would cost \$598,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$330,000. This barrier will not be constructed as part of the project.

The seventh barrier is a 4.27 meter (14 foot) high wall that would be located on the southbound (west) side of I-15. The wall would begin approximately 1600 meters (5249 feet) north of Citracado Parkway and would extend north approximately 100 meters (328 feet) along the right of way. The proposed barrier would benefit 12 residences and would cost \$490,000 and is considered not reasonable since it exceeds the Protocol allowance of \$324,000. The cost of this barrier is based on the wall itself and the cost to remove an existing concrete channel that is 520 meter (1700 foot) in length. This channel would conflict with the construction of the sound wall. This barrier will not be constructed as part of the project.

The eighth barrier is a 3.66 meter (12 foot) high wall that would be located on the southbound (west) side of I-15. The wall would begin approximately 500 meters (1640 feet) south of Ninth Avenue and would extend to the north approximately 100 meters (328 feet) along the right of way. The proposed barrier would benefit three residences and would cost \$110,000. The wall is considered not reasonable since it exceeds the Protocol allowance of \$57,000. This barrier will not be constructed as part of the project.

Table 3-6: Noise Impacts

Seg. #	Site ID	Site Address	# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
1	103	9795 Mesa Springs Way	4	67	71	69	68	67	66	65	64	R/W	y
1	102	9755 Mesa Springs Way	4	65	67	66	65	64	63	63	63	R/W	y
1	101	9729 Mesa Springs Way	2	67	67	66	65	64	63	63	62	R/W	y
1	100	9715 Mesa Springs Way	2	69	72	70	69	68	67	66	65	R/W	y
1	105C	10191 Maya Linda Rd	6	66	69	69	68	67	66	65	64	R/W	y
1	105B	10101 Maya Linda Rd	6	69	71	70	70	68	67	66	65	R/W	y
2	105	10216 Maya Linda Rd	6	69	71	70	68	67	66	64	64	R/W	y
2	105A	10240 Maya Linda Rd	5	64	68	67	66	66	65	64	63	R/W	y
2	1105	10264 Maya Linda Rd	5	70*	71	71	70	69	68	67	67	R/W	y
2	104	10280 Maya Linda Rd	8	74	78	74	72	71	69	68	68	E/S	y
2	104A	10280 Maya Linda Rd	1	72	75	72	71	70	69	68	67	E/S	y
2	1303-1	10320 Maya Linda Rd	8	66*	71	67	66	65	64	63	63	E/S	y
2	303	10340B Maya Linda Rd.	2	65	73	69	67	66	65	64	63	E/S	y
2	1303-2	10360 Maya Linda Rd	0	68*	72	68	67	65	64	63	63	E/S	y
2	302	10380C Maya Linda Rd.	2	65	72	68	66	65	64	63	63	E/S	y
2	1302-1	10420 Maya Linda Rd	2	70*	74	70	69	67	66	65	64	E/S	y
2	1302-2	10440 Maya Linda Rd	2	69*	73	69	68	66	65	64	63	E/S	y
2	301/ 301R	10460 Maya Linda Rd.	3	70	74	71	69	68	67	66	65	E/S	y
2	1301	10480 Maya Linda Rd	0	70*	74	71	69	68	67	66	65	E/S	y
2	300/300R	9889 Erma Road	2	69	75	72	70	69	68	67	66	E/S	y
3	1112	11297 Spitfire Rd.	3	60*	60	**	**	**	**	**	**	**	**
3	112	11331 Spitfire Rd.	4	56	60	**	**	**	**	**	**	**	**
3	112A	11310 Spitfire Rd.	4	60	64	**	**	**	**	**	**	**	**
3	113	11341 Spitfire Rd.	3	60	63	**	**	**	**	**	**	**	**
3	114	11365 Spitfire Rd.	4	58	63	**	**	**	**	**	**	**	**

* Modeled location

** Site was not representative of a noise-sensitive land use or did not qualify for abatement

Seg. #	Site ID	Site Address		Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
3	114A	11390 Spitfire Rd.	5	58	62	**	**	**	**	**	**	**	**
3	115A	11397 Spitfire Rd.	3	61	65	**	**	**	**	**	**	**	**
3	116	11445 Spitfire Rd.	3	53	59	**	**	**	**	**	**	**	**
3	106	9868 Erma Drive	4	68	71	70	70	69	68	67	66	R/W	n
3	3	9848 Scripps Westview Way	4	75	75	73	72	71	70	69	68	R/W	n
3	107	9899 Erma Way	6	50(i)	50	**	**	**	**	**	**	**	**
3	108	9895 Scripps Westview Way	6	49(i)	50	**	**	**	**	**	**	**	**
3	1002	9889 Scripps Westview Way	4	57(i)	58	57	56	55	53	52	51	E/S	y
3	2A	9889 Scripps Westview Way	2	53(i)	54	54	52	51	49	48	47	E/S	y
3	2	9889 Scripps Westview Way		56(i)		56	54	52	51	50	49	E/S	y
3	1109	9906 Scripps Westview Way	5	54(i)	55	55	53	51	50	49	48	E/S	y
3	109	9906 Scripps Westview Way	4	54(i)	55	54	53	51	50	48	47	E/S	y
3	1110	9916 Scripps Westview Way	6	55(i)	55	55	53	52	51	50	49	R/W	n
3	110	9926 Scripps Westview Way	3	51(i)	52	51	50	50	48	47	46	R/W	n
3	1A	10070 Scripps Vista Way	0	70	72	71	70	69	68	67	66	R/W	n
3	1	10070 Scripps Vista Way	0	65	65	64	64	64	64	63	63	R/W	n
3	111	10050 Scripps Vista Way	7	67	67	67	67	66	66	65	64	R/W	n
3	117	10020 Scripps Vista Way	5	66	70	70	68	67	66	65	64	R/W	n
3	3A	9899 Scripps Westview Way	12	68	72	71	70	68	67	66	65	R/W	n
3	118	9990 Scripps Vista Way	8	59	63	61	59	59	58	58	57	R/W	n
4	306	9860 Mercy Road	2	65	68	66	66	65	64	63	62	E/S	n
4	305	9854 Mercy Road	2	65	69	67	67	65	64	63	62	E/S	n
4	304	9848 Mercy Road	3	63	66	64	64	63	62	61	60	E/S	n
4	304A	9933 Kika Ct.	3	55	61	60	59	58	57	57	56	E/S	n
4	307	9842 Mercy Road	3	61	58	57	56	55	54	53	52	E/S	n

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(i) Interior Measurement

Seg. #	Site ID	Site Address			Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
4	304B	9905	Kika Ct.	4	57	63	62	61	60	59	58	58	E/S	n
4	119	9980	Kika Ct.	4	61	65	64	63	62	61	61	60	E/S	n
4	120	9946	Kika Ct.	4	65	66	66	65	64	63	62	62	E/S	n
4	120A	9946	Kika Street	4	59	65	64	63	62	61	60	60	E/S	n
4	120B	9946	Kika Street	4	61	67	66	65	64	63	62	61	E/S	n
4	121	9952	Kika Ct.	4	65	69	68	66	65	65	64	63	E/S	n
4	1122-2	9741	Paseo Montril	2	61*	62	**	**	**	**	**	**	**	**
4	1122-1	9749	Paseo Montril	2	64*	66	63	61	59	58	57	56	P/L	n
4	122A/A R	9765	Paseo Montril	3	67	70	67	64	62	60	59	58	P/L	n
4	123A	9811	Paseo Montril	4	67	70	67	65	63	61	59	58	P/L	n
4	124A	9829	Paseo Montril	5	73	76	76	76	76	76	76	76	P/L	n
4	125/12 5R	9829	Paseo Montril	4	66	68	67	65	62	61	60	59	P/L	n
4	1125-2	9841	Paseo Montril	3	65*	66	64	63	61	61	60	59	P/L	n
5	126	10273	Via del Sud	3	61	63	**	**	**	**	**	**	**	**
5	127A	10289	Ave. Grande	5	60	65	**	**	**	**	**	**	**	**
5	128	13035	Via del Sud	4	63	65	**	**	**	**	**	**	**	**
5	129	10329	Azuaga St.	4	57	61	**	**	**	**	**	**	**	**
5	130	10341	Azuaga St.	4	59	61	**	**	**	**	**	**	**	**
5	5	10365	Azuaga St.	4	65	66	66	65	63	62	60	59	P/L	n
5	131	10377	Azuaga St.	4	63	65	**	**	**	**	**	**	**	**
5	308	SR56 O/R	Vacant Propert	0	60	61	**	**	**	**	**	**	**	**
5	309	SR56 O/R	Vacant Propert	0	57	60	**	**	**	**	**	**	**	**
6	1312		Caminito Sulmona	3	57*	63	**	**	**	**	**	**	**	**
6	312	10514	Caminto Sulmona	2	57	62	**	**	**	**	**	**	**	**
6	311	13859	Via Rimini	4	63	68	Not Feasible							**

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Seg. #	Site ID	Site Address	# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
6	1310	13883 Via Rimini	3	66*	68	68	67	66	64	63	62	P/L	n
6	310	13899 Via Rimini	4	62	68	68	68	66	65	64	63	P/L	n
6	1132	14022 Caminito Almonte	2	72*	74	72	71	69	68	67	66	P/L	n
6	132	14020 Caminito Almonte	0	73	77	**	**	**	**	**	**	**	n
6	6	11093 Via San Marco	4	70	70	70	69	66	65	63	62	P/L	n
6	1133-1	11094 Via San Marco	3	69*	71	71	69	67	65	63	62	P/L	n
6	133	14187 Conluito Quevedo	2	68	72	72	70	68	67	65	64	P/L	n
6	1133-2	14203 Caminito Quevedo	2	70*	75	75	75	71	67	65	63	P/L	n
6	134	10794 Carmel Mountain Rd	8	66	73	73	72	71	70	68	67	E/S-P/L	y
6	1134	14065 Carmel Mountain Rd	8	65*	75	75	74	72	71	69	68	E/S-P/L	y
6	1135-1	10473 Carmel Mountain Rd	8	64*	74	74	73	71	70	69	67	E/S-P/L	y
6	135	14091 Carmel Mountain Rd	10	64	74	74	73	72	70	69	68	E/S-P/L	y
6	8	14119 Carmel Mountain Rd	10	63	69	68	68	68	68	67	66	E/S-P/L	y
6	1135-2	14135 Carmel Mountain Rd	8	67*	76	75	74	73	72	71	69	E/S-P/L	y
6	136	14132 Carmel Mountain Rd	10	65	75	75	74	73	72	71	70	E/S-P/L	y
6	1136	14227 Carmel Mountain Rd	10	66*	74	74	73	72	70	69	68	E/S-P/L	y
6	137	14226 Carmel Mountain Rd	4	65	74	74	73	71	70	69	67	E/S-P/L	y
6	1137	14335 Carmel Mountain Rd	4	65*	74	74	72	70	69	68	67	E/S-P/L	y
6	7	14339 Carmel Mountain Rd	2	62	71	71	69	68	67	66	66	E/S-P/L	y
6	316	14363 Carmel Mountain Rd.	7	60	67	67	67	67	66	65	64	E/S-P/L	y
6	315	11077 Carmel Mountain Rd.	4	66	73	72	72	71	70	68	67	E/S-P/L	y
6	1314	11093 Carmel Mountain Rd	2	67*	73	73	72	71	70	68	67	E/S-P/L	y
6	314	11097 Carmel Mountain Rd.	2	62	69	68	68	67	66	65	64	E/S-P/L	y
6	313	14340 Penasquitos Dr.	0	67		**	**	**	**	**	**	**	**
6	138B	to 10282 Rancho Carmel Dr	0	62	66	66	65	64	63	62	61	E/S	n

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Seg. #	Site ID	Site Address		# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
6	138A	to 10282	Rancho Carmel Dr	0	62	66	65	64	63	62	61	60	E/S	n
6	1138-1	10278	Rancho Carmel Dr	3	65*	66	66	65	64	63	62	61	E/S	n
6	138	10282	Rancho Carmel Dr	3	63	67	66	66	64	63	62	62	E/S	n
6	1138-2	10296	Rancho Carmel Dr	4	65*	67	66	66	64	64	63	62	E/S	n
6	139	10320	Rancho Carmel Dr	2	58	67	66	66	65	64	63	62	E/S	n
6	139Alt	10314	Rancho Carmel Dr	2	63	67	66	66	65	64	63	62	E/S	n
6	1139	1525	Tanglewood	5	65*	67	67	66	65	64	63	62	E/S	n
6	1140-1	10326	Rancho Carmel Dr	6	62*	64	64	63	62	61	60	59	E/S	n
6	140	10326	Rancho Carmel Dr	4	60	65	64	63	62	61	60	60	E/S	n
6	1140-2		Rancho Carmel Dr	6	62*	64	64	63	62	61	60	60	E/S	n
6	141	10388	Rancho Carmel Dr	4	57	62	62	61	61	60	59	58	E/S	n
6	1141		Rancho Carmel Dr	4	58*	61	61	61	60	60	59	58	E/S	n
6	1142	1525	Tanglewood	2	61*	64	64	64	64	63	63	62	E/S	n
6	142A	14042	Chicarita Creek	2	59	66	66	66	65	65	64	63	E/S	n
6	143A	14076	Chicarita Creek	3	61	69	69	69	68	67	66	65	E/S	n
6	1143	14114	Chicarita Creek	2	62*	67	67	67	67	66	65	64	E/S	n
6	144	14136	Chicarita Creek	4	62	66	66	66	66	66	66	65	E/S	n
6	1144	14174	Chicarita Creek	4	63*	65	**	**	**	**	**	**	**	**
6	145	14192	Chicarita Creek	4	61	65	**	**	**	**	**	**	**	**
6	1145	14222	Chicarita Creek	4	61*	63	**	**	**	**	**	**	**	**
6	9	14228	Woodbrush Rd	0	58	64	**	**	**	**	**	**	**	**
6	146	14234	Chicarita Creek	-	63	68	**	**	**	**	**	**	**	**
7	GC-1	14555	Penasquitos Dr	0	71*	72	**	**	**	**	**	**	**	**
7	GC-2	14555	Penasquitos Dr	0	70*	70	**	**	**	**	**	**	**	**
7	GC-3	14555	Penasquitos Dr	0	70*	68	**	**	**	**	**	**	**	**

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Seg. #	Site ID	Site Address	# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
7	GC-4	14555	Penasquitos Dr	0	67*	63	**	**	**	**	**	**	**
7	GC-5	14555	Penasquitos Dr	0	71*	65	**	**	**	**	**	**	**
7	147	15025	Andorra Way	3	57	62	**	**	**	**	**	**	**
7	148	15081	Andorra Way	6	61	64	**	**	**	**	**	**	**
7	149	15205	Andorra Way	7	63	63	**	**	**	**	**	**	**
7	150	15255	Andorra Way	5	72	72	70	67	65	63	62	61	P/L n
7	151	15305	Andorra Way	3	67	70	69	68	67	66	64	63	P/L n
7	1151		Andorra Way	5	66*	67	67	66	64	63	62	61	P/L n
7	152	15304	Paseo Ajanta	2	56	60	**	**	**	**	**	**	**
7	13	15314	Paseo Ajanta	0	52	58	**	**	**	**	**	**	**
7	153A	15346	Paseo Ajanta	3	57	63	**	**	**	**	**	**	**
7	154	15404	Paseo Ajanta	4	51	61	**	**	**	**	**	**	**
7	12	11397	Paseo Albacete	0	52	61	**	**	**	**	**	**	**
7	155	15494	Paseo Ajanta	6	47	53	**	**	**	**	**	**	**
7	156	11253	Corte Montanoso	2	57	63	**	**	**	**	**	**	**
7	157	11267	Corte Montanoso	2	61*	64	**	**	**	**	**	**	**
8	1158		Lofty Trail Ct..	3	65*	66	65	64	63	62	61	60	E/S n
8	158	15508	Lofty Trail Ct.	3	64	66	65	64	63	62	61	60	E/S n
8	159	15717	Lofty Trail Ct.	4	60	64	63	62	61	60	59	58	E/S n
8	160	15765	Lofty Trail Dr.	4	63	65	64	63	63	62	61	60	E/S n
8	161	15813	Lofty Trail Dr.	5	65	66	65	65	64	63	62	61	E/S n
8	165A	15853	Lofty Trail Dr.	5	67	71	70	68	68	66	65	64	E/S n
8	1165		Lofty Trail Dr.	4		69	69	68	67	66	66	65	P/L n
8	166	11515	Windy Summit	2	68	70	68	66	64	62	61	60	P/L n
8	1166		Windy Summit	2		71	69	66	64	63	62	61	P/L n

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Seg. #	Site ID	Site Address		# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
8	167	15945	Lofty Trail Dr.	3	66	69	67	64	62	60	59	58	P/L	n
8	168	15993	Lofty Trail Dr.	5	66	70	68	66	64	63	61	60	P/L	n
8	1168	16029	Lofty Trail Dr.	3	70*	70	68	65	64	62	61	60	P/L	n
8	169	16401	Lofty Trail Dr.	2	65	68	66	64	62	61	60	59	P/L	n
8	170	11525	Eaglesview	3	71	70	66	64	62	61	60	59	P/L	n
8	171	10525	Earthstar Ct.	3	70	71	69	67	66	65	65	65	P/L	n
8	1171	10512	Earthstar Ct.	3	71*	72	70	69	67	66	66	65	P/L	n
8	1172-1	16165	Lofty Trail Dr.	3	60*	62	60	59	58	58	58	57	P/L	n
8	18	16133	Lofty Trail Dr.	0	54	59	58	57	57	56	56	56	P/L	n
8	172A	16149	Lofty Trail Dr.	2	68	70	66	63	61	59	58	57	P/L	n
8	1172-2	16165	Lofty Trail Dr.	2	68*	70	66	63	60	58	57	57	P/L	n
8	173	16181	Lofty Trail Dr.	1	61	66	63	61	59	58	57	56	P/L	n
8	1173	11488	Turtleback	2	64*	66	66	64	61	59	57	57	P/L	n
8	174A	11476	Turtleback	2	61	68	67	65	63	61	59	58	P/L	n
8	17	11464	Turtleback	0	53	58	58	57	56	56	55	55	P/L	n
8	175	11452	Turtleback	3	60	65	65	64	60	58	56	55	P/L	n
8	1162	11563	Avenida Sivrita	1	66*	67	67	65	64	62	61	60	P/L	n
8	162	11551	Avenida Sivrita	1	64	69	69	67	65	63	62	60	P/L	n
8	163	11550	Avenida Sivrita	1	67	72	72	70	68	65	64	62	P/L	n
8	164	11570	Avenida Sivrita	1	62	68	68	66	65	63	62	61	P/L	n
8	1176		El Paracho	2	67*	68	66	63	61	59	58	58	P/L	n
8	176	11698	El Paracho	2	70	72	71	68	66	63	62	61	P/L	n
8	177	11722	Calle Vivienda	4	69	72	69	67	65	64	63	62	P/L	n
8	178	11740	Calle Vivienda	2	66	70	68	66	64	63	62	61	P/L	n
8	179D	11762	Vivienda	2	69	71	71	71	71	69	68	66	P/L	n

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Seg. #	Site ID	Site Address		# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
8	179	11762	Calle Vivienda	1	63	64	64	64	64	63	62	61	P/L	n
8	179C	11762	Vivienda	1	60	64	64	63	63	62	61	61	P/L	n
8	180	11658	Corte Giera	2	65	68	67	65	64	63	63	62	P/L	n
8	1180	11650	Corte Giera	3	70*	71	69	67	65	63	62	61	P/L	n
8	181	11705	Delas Misiones	2	67	71	70	65	62	60	58	58	P/L	y
8	1181-1	16042	Caminito Tomas	3	66*	67	65	63	61	60	58	57	P/L	y
8	1181-2	16082	Caminito Tomas	2	68*	69	68	64	62	60	58	57	P/L	y
8	318	16146	Avenida Venusto	2	69	72	72	70	68	66	64	63	P/L	n
8	1318	16150	Avenida Venusto	2	72*	74	74	73	72	71	69	67	P/L	n
8	317	16156	Avenida Venusto	2	69	73	73	73	73	71	69	66	P/L	n
8	1019-1	11705	Corte Sosegada	2	66*	67	67	65	63	61	59	58	P/L	n
8	19	11706	Corte Sosegada	0	60	61	61	60	59	59	58	58	P/L	n
8	1019-2	11706	Corte Sosegada	1	64*	66	66	64	62	60	58	56	P/L	n
8	1019-3	11705	Corte Templanza	2	65*	66	66	65	62	61	59	58	P/L	n
8	1019-4		Corte Templanza	3	63*	64	64	62	60	58	57	56	P/L	n
9	182	17051	W Bernardo Drive	0	59	64	**	**	**	**	**	**	**	**
9	183	17412	Caminito Canasto	4	61	66	**	**	**	**	**	**	**	**
9	1183	17131	W Bernardo Drive	4	65*	65	**	**	**	**	**	**	**	**
9	22	17133	W Bernardo Drive	4	64	65	**	**	**	**	**	**	**	**
9	184	17147	Caminito Canasto	3	62	65	**	**	**	**	**	**	**	**
9	23	17343	Caminito Canasto	4	63	64	**	**	**	**	**	**	**	**
9	1023	17353	Caminito Canasto	5	64*	65	**	**	**	**	**	**	**	**
9	185	17373	Jocatal	4	64	67	**	**	**	**	**	**	**	**
9	24	17443	Caminito Canasto	4	62	66	**	**	**	**	**	**	**	**
9	1186	17453	Caminito Canasto	2	63*	65	**	**	**	**	**	**	**	**

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Seg. #	Site ID	Site Address	# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
9	186	17495	Valladares	4	61	65	**	**	**	**	**	**	**
9	191	17523	Caminito Cansto	2	59	64	**	**	**	**	**	**	**
9	187	11819	Bernardo Terrace	11	69	72	71	70	69	67	66	65	R/W n
9	188A	11819	Bernardo Terrace	6	63	64	64	63	62	61	61	60	R/W n
9	20	11816	Bernardo Terrace	10	68	71	70	69	68	67	65	64	R/W n
9	189	17426	Ashburton	4	71	74	73	71	70	68	67	66	R/W n
9	1189	17438	Ashburton	2	72*	73	73	71	69	68	67	66	R/W n
9	21	17466	Ashburton	2	70	70	70	67	65	64	63	63	R/W n
9	1021	17466	Ashburton	2	71*	73	72	70	68	67	65	64	R/W n
9	190	17498	Ashburton	2	70	74	73	69	67	65	64	63	R/W n
9	1190	17548	Ashburton	7	70*	71	71	68	66	65	63	62	R/W n
9	25	17625	Fairlie	5	67	71	70	67	65	64	63	62	R/W n
10	1192	11616	Duenda Rd	0	66*	67	**	**	**	**	**	**	**
10	192	11616	Duenda Rd	0	76	78	**	**	**	**	**	**	**
10	1027-1	17616	Valladares	2	65*	66	65	64	63	62	61	61	R/W n
10	27	17616	Valladares	0	63	66	65	64	63	62	61	60	R/W n
10	1027-2	17605	Valladares	2	66*	68	67	66	65	64	63	62	R/W n
10	1193-1	11681	Jocatal	1	60*	61	**	**	**	**	**	**	**
10	193	11686	Jocatal	1	58	62	**	**	**	**	**	**	**
10	1193-2	11696	Agreste Pl.	3	59*	61	**	**	**	**	**	**	**
10	194	17957	Almendro Ln.	3	57	61	**	**	**	**	**	**	**
10	1195-1	18037	Valladares	2	59*	62	**	**	**	**	**	**	**
10	195	18057	Valladares	2	57	62	**	**	**	**	**	**	**
10	1195-2	18107	Valladares	5	61*	63	**	**	**	**	**	**	**
10	1197	18157	Valladares	2	60*	62	**	**	**	**	**	**	**

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10	197	18177	Valladares	2	59	63	**	**	**	**	**	**	**
10	30	18198	Valladares	2	61	65	**	**	**	**	**	**	**
10	198	11646	Andanza	3	54	58	**	**	**	**	**	**	**
10	322		Bernardo Street	0	63	61	**	**	**	**	**	**	**
10	11320		Ashburton	3	67*	67	67	66	65	64	63	62	P/L n
10	320	11825	Caminito Ronaldo Bldg.	4	67	70	70	68	66	64	63	62	P/L n
10	1320	11840	Caminito Pinero	4	68*	68	68	67	66	64	63	62	P/L n
10	26	17785	Caminito Pinero Bldg. 14	0	67	70	70	67	65	62	61	60	P/L n
10	1026-1	17885	Caminito Pinero	4	65*	66	66	65	64	63	62	61	P/L n
10	1026-2	17925	Caminito Pinero	3	65*	66	66	65	64	63	62	61	P/L n
10	319	17975	Caminito Pinero Bldg. 24	3	66	70	70	69	67	65	64	62	P/L n
10	1319	17985	Caminito Pinero	2	65*	67	67	66	65	65	64	63	P/L n
10	1029-1	11956	Voisin Court	1	68*	69	**	**	**	**	**	**	**
10	1029-2	11954	Corte Tezcuco	1	68*	69	**	**	**	**	**	**	**
10	29	S. Curb	Chretien / Escala	1	68	70	**	**	**	**	**	**	**
10	323		Escala Dr.	0	61	63	**	**	**	**	**	**	**
11	321	18500	W. Bernardo Dr	0	62	65	64	63	62	62	61	60	R/W n
11	324A	18800	Bernardo Ave.	0	62	66	65	64	63	62	61	60	R/W n
11	1324	18800	Bernardo Ave.	0	64*	65	65	64	63	61	61	60	R/W n
11	324	18800	Bernardo Ave.	0	62	66	66	64	63	62	61	60	R/W n
11	1031A-1	18655	W. Bernardo Ave.	1	76*	77	77	76	74	72	70	69	P/L n
11	1031A-2	18655	W. Bernardo Ave.	4	74*	75	74	73	72	71	70	69	P/L n
11	31A	18755	W. Bernardo Ave.	2	75	76	75	75	74	73	72	71	P/L n
11	1031A-3	18755	W. Bernardo Ave.	1	70*	70	70	69	69	68	67	67	P/L n
11	31B	18755	W. Bernardo Ave.	0	79	78	**	**	**	**	**	**	**

* Modeled location

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Seg. #	Site ID	Site Address	# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
11	1031B	18755 W. Bernardo Ave.	0	73*	74	72	71	70	69	68	68	P/L	n
11	201	18655 W. Bernardo Dr.	1	77	79	78	76	74	71	69	67	P/L	n
11	202	18655 W. Bernardo Dr.	2	62	66	65	64	61	60	58	58	P/L	n
11	203	18655 W. Bernardo Dr.	3	60	63	63	62	60	58	57	56	P/L	n
11	199	18614 Caminito Pasadero	3	64	67	66	64	63	62	61	60	P/L	n
11	1199	18630 Caminito Cantilena	3	63*	65	65	64	63	62	61	61	P/L	n
11	200	18656 Caminito Cantilena	4	67	70	70	69	67	66	65	65	P/L	n
11	1200	1525 Tanglewood		67*	69	69	68	67	66	66	65	P/L	n
11	31	8692 Caminito Cantilena	0	64	68	68	67	65	64	62	61	P/L	n
11	1031-1	18736 Caminito Cantilena	2	66*	67	67	67	65	63	62	61	P/L	n
11	1031-2	18752 Caminito Cantilena	2	63*	65	65	64	63	61	60	59	P/L	n
11	1031-3	18764 Caminito Cantilena	2	62*	64	64	63	62	61	61	60	P/L	n
11	325	18826 Caminito Cantilena	2	63	69	69	68	65	64	62	61	P/L	n
11	1325-1	18840 Caminito Cantilena	7	65*	66	66	66	64	63	62	61	P/L	n
11	325A	18880 Caminito Cantilena #64	7	65	66	66	65	63	62	61	60	P/L	n
11	1325-2	18880 Caminito Cantilena #47	0	65*	66	66	65	62	60	59	58	P/L	n
12	328	None open-space	0	68	72	**	**	**	**	**	**	**	**
12	327	None open-space	0	70	70	**	**	**	**	**	**	**	**
12	1327-1	None open-space	0	72*	72	**	**	**	**	**	**	**	**
12	1327-2	None open-space	0	69*	71	**	**	**	**	**	**	**	**
12	1327-3	None open-space	1	67*	68	**	**	**	**	**	**	**	**
12	1204-1	3640 Vista de la Canada	1	60*	61	**	**	**	**	**	**	**	**
12	204	3630 Vista de la Canada	1	72	72	70	68	67	65	63	61	P/L	n
12	1204-2	3610 Avenida Amarosa	1	62*	64	**	**	**	**	**	**	**	**
12	205	3538 Avenida Amarosa	2	60	63	**	**	**	**	**	**	**	**

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Seg. #	Site ID	Site Address	# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
12	1205	3542	Avenida Amarosa	2	59*	61	**	**	**	**	**	**	**
12	1206	3530	Avenida Amarosa	1	63*	64	**	**	**	**	**	**	**
12	206	3526	Avenida Amarosa	1	58	62	**	**	**	**	**	**	**
12	326	None	open-space	0	68	72	**	**	**	**	**	**	**
12	206B	None	open-space	0	69	70	**	**	**	**	**	**	**
12	206A	None	open-space	0	69	71	**	**	**	**	**	**	**
12	206C	None	open-space	0	68*	69	**	**	**	**	**	**	**
13	329	3278	Via Ribera	2	57	61	**	**	**	**	**	**	**
13	330	3248	Via Ribera	1	62	64	**	**	**	**	**	**	**
13	331	3218	Via Ribera	1	60	59	**	**	**	**	**	**	**
13	1333	3218	Via Ribera	2	65*	66	Not Feasible						**
13	333	106	Camino Bailen	1	63	67	Not Feasible						**
13	332	140	Camino Bailen	2	47	51	**	**	**	**	**	**	**
13	207	232	Silver Creek	2	50	55	**	**	**	**	**	**	**
13	209	226	Clarence	1	61	66	Not Feasible						**
13	1209	226	Clarence	1	66*	67	Not Feasible						**
13	210	3018	South Center City Pkwy.	1	77	79	79	78	76	76	75	74	n
13	334	3165	El Ku Ave.	0	64	65	**	**	**	**	**	**	n
13	1208	3127	El Ku Ave.	1	63*	66	65	64	63	62	61	61	E/S n
13	208	3137	El Ku Ave.	1	60	65	64	63	62	62	61	61	E/S n
13	32	3115	El Ku Ave.	2	61	64	**	**	**	**	**	**	**
13	1032	3105	El Ku Ave.	2	62*	64	**	**	**	**	**	**	**
13	1335-1	3039	El Ku Ave.	1	63*	63	**	**	**	**	**	**	**
13	335	3014	El Ku Ave.	1	66	64	**	**	**	**	**	**	**
13	1335-2	3014	El Ku Ave.	1	62*	63	**	**	**	**	**	**	**

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Seg. #	Site ID	Site Address	# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
14	211	302 Woodland Hills Dr.	1	66	68	67	65	62	60	59	57	P/L	n
14	1211	2456 Alexander Dr.	1	71*	71	70	68	65	63	61	60	P/L	n
14	215	2448 Alexander Dr.	1	60	64	**	**	**	**	**	**	**	**
14	1215	2418 Alexander Dr.	1	67*	67	67	66	64	63	62	60	P/L	n
14	216	2413 Alexander Dr.	1	53	56	**	**	**	**	**	**	**	**
14	1216	2411 Alexander Dr.	1	58*	58	**	**	**	**	**	**	**	**
14	36A	2407 Alexander Dr.	1	61	64	**	**	**	**	**	**	**	**
14	217A	Miller Ave.	1	61	65	**	**	**	**	**	**	**	**
14	218A	2315 Miller Ave.	1	64	68	Not Feasible							**
14	1218	2315 Miller Ave.	1	64*	64	**	**	**	**	**	**	**	**
14	219	2324 Miller Ave.	1	59	62	**	**	**	**	**	**	**	**
14	224	800 Monticello Drive	0	55	59	**	**	**	**	**	**	**	**
14	213	2865 South Center City Pkwy.	1	67	70	68	66	65	64	63	62	E/S	n
14	212	2851 South Center City Pkwy.	1	63	68	66	65	64	63	62	61	E/S	n
14	1214	2789 South Center City Pkwy.	1	66*	66	65	65	64	63	62	61	R/W	n
14	214	2777 South Center City Pkwy.	1	55	58	**	**	**	**	**	**	**	**
14	33	491 Lost Oak Lane	1	55	58	**	**	**	**	**	**	**	**
14	1336	535 Lost Oak Ln.	1	60*	60	**	**	**	**	**	**	**	**
14	336	571 Lost Oak Ln.	1	68*	69	69	68	66	65	64	63	R/W	n
14	220	594 Lost Oak Ln.	1	73	74	73	71	70	69	68	67	P/L	n
14	1221	401 Rancho La Mirada Ln.	1	66*	66	Not Feasible							**
14	221	2242 Alexander Dr.	1	60	65	**	**	**	**	**	**	**	**
14	222	2205 Alexander Dr.	1	66	65	**	**	**	**	**	**	**	**
14	1222	2183 Alexander Dr.	1	67*	68	67	66	66	65	64	63	R/W	n
14	223	2187 Alexander Dr.	1	72	75	74	73	72	70	69	68	R/W	n

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Seg. #	Site ID	Site Address	# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
15	1225A-1	964 Gamble Lane	1	66*	68	67	66	65	64	63	62	E/S	n
15	225A	964 Gamble Lane	1	64	70	68	67	66	65	64	63	E/S	n
15	1225A-2	964 Gamble Lane	1	67*	70	68	67	66	65	64	63	E/S	n
15	39A	Gamble Lane	1	57	62	62	62	61	60	59	58	E/S	n
15	1039	Gamble Lane	1	64*	66	66	65	64	63	62	61	E/S	n
15	39	Gamble Lane	1	60	65	63	63	62	61	60	59	E/S	n
15	226	Gamble Lane	1	66	71	69	68	67	66	65	64	R/W	n
15	1231	2064 Bernardo Ave.	1	67*	70	68	67	66	65	64	63	R/W	n
15	231	2064 Bernardo Ave.	1	67	71	69	69	68	67	66	65	R/W	n
15	232	Bernardo Ave.	1	64	68	Not Feasible							**
15	337	Bernardo Ave.	0	67	72	**	**	**	**	**	**	**	**
15	338	Bernardo Ave.	0	69	72	**	**	**	**	**	**	**	**
15	1338	Bernardo Ave.	0	71*	73	**	**	**	**	**	**	**	**
15	339	1546 Knoll Park Glen Ave.	3	70	74	74	72	69	67	66	65	R/W	n
15	1339	Bernardo Ave.	4	69*	70	70	69	69	68	67	66	R/W	n
15	340	Bernardo Ave.	1	68	74	71	69	67	66	64	63	R/W	n
15	340A	1476 Knoll Glenn Park	1	68	72	70	70	68	67	66	65	R/W	n
15	340B	adj. to 1476 Knoll Glenn Park	2	71	72	71	70	69	68	67	65	R/W	n
15	1340	1525 Bernardo Ave.	2	62*	63	**	**	**	**	**	**	**	n
15	1342-1	1327 Bernardo Ave.	2	62*	63	**	**	**	**	**	**	**	**
15	342B	1295 Ridgewood	2	52	55	**	**	**	**	**	**	**	**
15	342A	1303 Bernardo Ave.	3	62	65	**	**	**	**	**	**	**	**
15	1342-2	1284 Ridgewood Lane	1	62*	63	**	**	**	**	**	**	**	**
15	1343	1273 Bernardo Ave.	3	64*	65	**	**	**	**	**	**	**	**
15	343	1225 Bernardo Ave.	4	60	66	64	64	62	61	60	59	R/W	n

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Seg. #	Site ID	Site Address	# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
15	236	1464 W. 11'th Ave. (at R/W)	0	74	78	**	**	**	**	**	**	**	**
15	1236	1464 W. 11'th Ave.	1	70*	72	Not Feasible							**
15	237	1564 Tanglewood	1	71	74	74	73	72	70	69	68	E/S	n
15	1238	Tanglewood	1	69*	71	70	69	67	66	65	64	E/S	n
15	238	1561 Tanglewood	1	63	69	68	67	65	63	62	61	E/S	n
15	238A	1561 Tanglewood	2	61	68	67	66	65	64	62	61	E/S	n
15	344	1525 Tanglewood	2	63	68	67	66	65	65	64	63	E/S	n
15	227	809 Palm Terrace	3	64	70	68	66	65	64	63	62	E/S	n
15	227A	809 Palm Terrace		66	70	69	69	68	67	66	65	E/S	n
15	1227-1	9946 Kika Street	2	67*	69	68	68	67	66	65	64	E/S	n
15	228	825 Palm Terrace	1	65	69	66	65	64	64	63	63	E/S	n
15	1228-1	2130 Felicita Rd.	1	69*	71	69	68	66	66	65	64	E/S	n
15	1228-2	2111 Felicita Rd.	1	69*	69	67	67	66	66	65	64	E/S	n
15	229	2000 Felicita Rd.	0	62	66	Not Feasible							**
15	38	2025 Felicita Ave.	2	62	67	Not Feasible							**
15	1038	Felicita	1	70*	72	Not Feasible							**
15	230	2035 Felicita Rd.	1	72	79	77	77	76	75	74	73	R/W	n
15	1230	Rohn Read	1	69*	72	71	71	70	70	69	68	R/W	n
15	1233	1996 Rohn Read	1	67*	70	69	69	68	67	66	65	R/W	n
15	233A	1994 Bernardo Ave.	1	71	74	74	72	71	70	69	68	R/W	n
15	234	1992 Bernardo Ave.	1	69	71	71	70	70	69	68	67	R/W	n
15	37	1971 Bernardo Ave.	2	66	71	71	70	69	69	68	67	R/W	n
15	235	1975 Bernardo Ave.	1	73	76	75	73	72	71	70	69	R/W	n
15	1235	1971 Bernardo Ave.	1	72*	74	73	73	72	71	70	69	R/W	n
15	341	1967 Bernardo Ave.	1	77	81	80	79	77	76	75	73	R/W	n

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Seg. #	Site ID	Site Address		# of Homes	Existing Level	Predicted Level	6'	8'	10'	12'	14'	16'	Location	Build
15	1341	1967	Bernardo Ave.	1	75*	77	77	76	76	75	74	74	R/W	n
15	1041-2	1931	Morton Glen	4	64*	67	67	65	63	61	60	59	P/L	n
15	1041-1	1927	Morton Glen	3	68*	70	70	68	65	64	62	61	P/L	n
15	41A	1923	Morton Glen	3	69	70	70	66	64	62	60	59	P/L	n
15	5016	1240	Pinecrest Dr.	2	66*	67	**	**	**	**	**	**	**	**
15	5008		11th Ave	1	67*	68	**	**	**	**	**	**	**	**
15	1042-2		11th Ave	2	69*	70	**	**	**	**	**	**	**	**
15	1042-1		11th Ave	1	69*	70	70	69	66	65	64	63	R/W	n
15	42	1325	11'th Ave.	0	75	78	72	69	66	64	62	61	R/W	n
15	1042-3	1430	W. 11'th Ave.	1	69*	70	70	69	68	66	65	64	R/W	n

* Modeled location

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3.8 Water Quality

In March 2001, a report entitled Water Quality Report: Interstate 15 from I-163 to SR-78 was prepared for the proposed project. The water quality report was completed to assist the planning and design staff in addressing impacts to water quality. Following is a discussion of the impacts associated with the proposed project.

3.8.1 Affected Environment

Several ephemeral and perennial surface waters can be found in the project area. Ephemeral streams are streams that contain water for only a portion of the year, while perennial streams contain water all year. The waters within the corridor include San Clemente Canyon Creek, Rose Canyon Creek, Miramar Reservoir, Carroll Canyon Creek, Second San Diego Aqueduct, Los Peñasquitos Canyon Creek, Lake Hodges, and several unnamed creeks.

There were several watersheds that did not contain identified surface water bodies including the Mission San Diego Hydrologic Sub Area (HAS), Green HAS, and Felicita HAS. In addition, numerous groundwater bodies are located within the project area. Watersheds within the corridor are shown in Figure 3-4.

The existing and potential beneficial uses that exist at these locations include uses as municipal and domestic water supply (MUN), agricultural water supply (AGR), water for industrial processes that primarily depend on water (PROC), industrial service supply for industries that do not depend primarily on water (IND), recreational activities involving contact with water (REC1), recreational activities involving no water contact (REC2), warm freshwater aquatic habitat (WARM), cold freshwater aquatic habitat (COLD), wildlife habitat (WILD), supporting rare, threatened and endangered species (RARE), and hydropower generation (POW). Table 3-7 shows the beneficial uses at each of the waterbodies within the project corridor.

Table 3-7: Beneficial Uses of Waters

Waterbody	Beneficial Use										
	M U N	A G R	I N D	P R O C	R E C 1	R E C 2	W A R M	C O L D	W I L D	R A R E	P O W
San Clemente Canyon Creek			○		●	●	●	●	●	●	
Rose Canyon Creek			○		●	●	●	●	●		
Carroll Canyon Creek		●	●		○	●	●	●	●	●	
Los Penasquitos Canyon Creek		●			●	●	●	●	●		
Lake Hodges	●	●	●	●	●	●	●	●	●	●	●
Miramar Reservoir HAS*	●	●	●								
Poway HAS	●	●	○								
Miramar HAS			○								
Hodges HAS	●	●	●								

- ★ Located upstream of proposed project, included only for completeness
- Potential beneficial use
- Beneficial use

3.8.2 Impacts

The proposed project will affect a variety of related water quality effects within the area. All impacts will be mitigated accordingly. Once the project assesses and includes Treatment Best Management Practices (BMPs) as part of the project, it will not significantly affect the water quality in the area either short-term (during construction) or long-term (after build-out).

New construction may have an effect on downstream channel stability through changes in the rate and volume of runoff, the sediment load due to changes in the land surface, and other hydraulic changes from stream encroachments, crossings or realignment. The peak flow rate, runoff velocities, and erosive characteristics of the soil in the area will be assessed with regards to downstream watercourses to determine potential impacts.

During construction suspended solids, either organic or inorganic, have been identified as a possible chemical and related water quality effect of the project. This is due to a large amount of disturbance that will occur during the construction phase.

Pursuant to Section 402 of the Clean Water Act, operators of the municipal stormwater conveyance systems are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for those systems.

During freeway operations, The Department's Standard Specifications and the terms and conditions of the NPDES permit will be implemented for pollutant controls. These typically include the following:

- Reduction of direct discharges
- Use of vegetated drainages
- Catch basin installation and maintenance
- Proper vegetation maintenance
- Design of drainage patterns to include proper retention, detention, and infiltration of runoff.

3.8.3 Measures to Minimize Harm

Treatment Best Management Practices (BMPs) must be considered for this project as required under the Storm Water Management Plan (SWMP). Treatment BMPs being considered include biofiltration strips/swales, infiltration basins, detention devices, traction sand traps, and dry weather flow diversions.

The potential sites for infiltration basins or detention devices include the southbound shoulder at I-15 and SR163, at Pomerado Road in the northbound gore area, and at Valley Parkway in the southbound loop ramp. All BMPs will be in compliance with requirements determined by the NPDES permit with the State Water Resources Control Board (SWRCB) and the Consent Decree (U.S. District Court for Southern District of CA, Case No. 90-0037-EIG) between The Department, Environmental Protection Agency (USEPA), National Resources Defense Council (NRDC) and the San Diego Baykeepers.

During a preliminary review of the project area, the use of vegetated swales was found to be feasible. The preliminary swale designs include a 75 meter (246 foot) swale on the northbound outside shoulder at Peñasquitos Creek, a 120 meter (394 foot) swale on the southbound outside shoulder at Peñasquitos Creek, a 120 meter (394 foot) swale on the southbound outside shoulder at San Clemente Creek, a 130 meter (426 foot) swale on the northbound outside shoulder at Lake Hodges, and a 190 meter (623 foot) swale on the southbound outside shoulder at the San Clemente Creek.

Where an increase in paved surfaces leads to an increase in either total or peak runoff discharges, a thorough evaluation will be performed to determine if any impacts will result.

If increased runoff will cause an increased potential for downstream impacts in the channels, the Department will consider the following control measures:

- Modifications to channel lining materials including vegetation, geotextile mats, rock and rip rap
- Energy dissipation devices at culvert outlets
- Incorporate retention or detention facilities to reduce peak discharge.
- Soil stabilizers on disturbed areas to reduce sediment loads
- Perimeter control practices to protect undisturbed areas from offsite runoff and to prevent sediment damage to areas below the project

During construction there will be the potential for more than 2.0 hectares (5 acres) of soil disturbance at one time. The standard construction practice of limiting soil disturbance to 2.0 hectares (5 acres) is a Department defined limit in order to minimize the potential for water quality impacts. The implementation of BMPs during construction will address both stormwater and non-storm water discharges. The temporary control measures will be consistent with the BMPs and control practices required under the State of California NPDES General Permit for storm water discharges associated with construction activity, and will be used to achieve compliance with the requirements of the permit.

to remove Spill containment and prevention control measures must be implemented in accordance with the SWMP. For the proposed project, all runoff from Lake Hodges Bridge will be conveyed to a treatment device prior to discharging, therefore, no direct runoff will be discharged into Lake Hodges without treatment. The elimination of direct runoff into Lake Hodges is considered a project benefit since this lake is a valuable resource within the region for recreation, wildlife habitat, and as a drinking water reservoir. The following control measures are being considered at the Lake Hodges Bridge:

- Drainage inlet inserts: designed sediment, adsorbed sediments, oil and grease
- Continuous deflection separators: designed to capture sediment and debris

- Biofiltration systems: could be used in combination with the above devices to filter out and trap pollutants prior to discharging
- Ground solid removal devices: designed to trap debris

Other measures would be adopted during the Regional Water Quality Control Board's Section 401 permit process.

3.9 Wetlands and Waters of the United States

As part of the biological studies conducted for the proposed project, all of the wetlands throughout the corridor were delineated and compiled in the Natural Environmental Study and Mitigation Recommendations for Managed Lanes/HOV and Auxiliary/Added Lanes Project Date September 13, 2000. Following is a discussion of the impacts identified for the proposed project.

3.9.1 Affected Environment

The major wetland areas along the corridor, are from north to south: Lake Hodges, Green Valley Creek, Chicarita Creek, Los Peñasquitos Creek, and San Clemente Creek at Miramar Marine Corp Air Station (MCAS). The first four areas support emergent marsh and southern willow scrub in generally good condition with some non-native vegetation present. Vernal pools, some supporting rare plants and animals, occur in the segment where the southbound right-of-way passes through Miramar MCAS. These areas were created in 1983 to offset impacts due to earlier I-15 construction (Scheidlinger 1985, 1988). In, addition to vernal pools created as mitigation, naturally occurring vernal pools exist in this region. Escondido Creek, which intersects the I-15 near the SR-78 junction, is contained in a concrete trapezoidal channel that does not support wetlands in the area of the corridor. There are several other small, unnamed drainages along the corridor such as a creek in San Clemente Canyon on Miramar MCAS, and a stream just north of Carroll Canyon Road that goes underground west of I-15.

3.9.2 Impacts

Both permanent and temporary impacts will occur at the five jurisdictional locations in the I-15 Corridor. Following is a discussion of the impacts that are anticipated at each of the locations. In addition, Table 3-8 summarizes impacts to wetlands and waters of the United States (waters).

Construction activities from Camino del Norte to Via Rancho Parkway would result in permanent impacts of 0.16 hectare (0.40 acre) of Army Corps of Engineers jurisdictional wetlands and 0.36 hectare (0.88 acre) of waters. Temporary impacts associated with construction including access and staging will total 1.4 hectares (3.52 acres) of wetlands/waters. Access may total up to 0.15 hectare (0.37 acre) in three areas. Incidental temporary impacts may occur due to geotechnical drilling required for preliminary design work and would be mitigated with the guidance of the regulatory and resource agencies.

At Green Valley Creek permanent impacts of 0.12 hectare (0.30 acre) of wetlands/waters and temporary impacts of about 0.30 hectare (0.72 acre) of the same are anticipated from construction of the Auxiliary/Added Lane from Camino del Norte to Via Rancho Parkway. Incidental temporary impacts may occur due to geotechnical drilling required for preliminary design work and would be mitigated with the guidance of the regulatory and resource agencies.

Los Peñasquitos Creek will have permanent impacts of less than 0.04 hectare (0.1 acre) of wetlands/waters and temporary impacts of 0.20 hectare (0.5 acre) due to the construction of the Auxiliary/Added Lane from Poway Road to Mercy Road.

The I-15/SR-56 Interchange will have permanent impacts in seven locations due to interchange improvements. Permanent impacts will total approximately 0.081 hectare (0.20 acre). Impacts totaling 0.04 hectare (0.11 acre) would occur at the depression northwest of the on ramp from southbound I-15 to westbound SR-56 overcrossing. These areas consist of mulefat scrub. Permanent impacts totalling 0.016 hectare (0.04 acre) will occur south of the I-15 and SR-56 overcrossing and in the southwest quadrant of I-15 and SR-56. These areas consist mostly of emergent wetlands. The other locations are located in the southwest quadrant of SR-56 and I-15 and consist of 0.001 hectare (0.01 acre) of unvegetated channels. In addition, the extension of SR-56 due to the Managed Lanes Project will impact 0.15 hectare (0.0375 acre) of emergent wetlands.

There would be no direct or indirect impacts to vernal pools at MCAS Miramar. Temporary wetlands/waters impacts of less than 0.08 hectare (0.2 acre) will occur during construction at San Clemente Canyon. These impacts are caused by the two proposed drainage easements.

Table 3-8: Wetlands and Waters of the United States

	Temporary Wetland Impacts (hectares/ acres)	Permanent Wetland Impacts (hectares/ acres)	Temporary Waters Impacts (hectares/ acres)	Permanent Waters Impacts (hectares/ acres)
Lake Hodges	1.42 / 3.52	0.16 / 0.40	1.42 / 3.52	0.36 / 0.88
Green Valley Creek	0.29 / 0.72	0.12 / 0.30	0.29 / 0.72	0.12 / 0.30
Los Peñasquitos Creek	0.20 / 0.50	0.04 / 0.10	0.20 / 0.50	0.04 / 0.10
I-15/SR-56 Interchange	0 / 0	0.08 / 0.20	0 / 0	0.08 / 0.20
San Clemente Canyon	0.08 / 0.2	0 / 0	0.08 / 0.2	0 / 0

3.9.3 Measures to Minimize Harm

Through project planning, vernal pools and their watersheds were identified and avoided. Wetland/waters areas were identified and avoided to maximum extent practicable. Environmentally Sensitive Areas (to be avoided) and Limited Use Areas (to be only used temporarily for specific purposes) would be designated on design plans to prohibit work from extending into sensitive areas. These areas will be monitored by the project biologist during construction. Avoidance and minimization for the proposed project included using retaining walls to minimize the filling of wetlands, ensuring disposal sites for excess dirt would be located in non-sensitive areas, creating a bridge for the barrier transfer machine south of H Avenue to avoid impacts to vernal pools that exist at the top of the slope, and designating all sensitive resources not directly impacted by the project as ESAs to avoid further impacts during construction. In addition to minimization measures adopted during Consultation with USFWS pursuant to Section 7 of the Endangered Species Act, other measures would be adopted through the Section 404 Nationwide Permit process conducted by the Army Corps of Engineers, through the Section 1601 Streambed Alteration Agreement from the California Department of Fish and Game, and through the Water Quality Certification from the California Regional Water Quality Control Board.

Impacts to wetlands would be mitigated through off site purchases and protection of wetlands currently under private ownership. It is proposed that temporary impacts be mitigated at a ratio of 1:1 and permanent impacts at a ratio of 3:1.

The Department is currently coordinating with the resource agencies to determine mitigation ratios and mitigation sites for impacts to wetlands/waters. This information will be included in the Final Negative Declaration/Finding Of No Significant Impact.

3.10 Wildlife

Wildlife corridors can be affected in numerous ways from the expansion of freeway facilities. Impacts to wildlife corridors can be created through changes to migration patterns, reduction of habitat, and through the introduction of new species into the area. Following is a discussion of anticipated impacts that are likely to occur with the proposed project.

3.10.1 Affected Environment

Corridors function as habitat for a variety of organisms, including birds and mammals. Within the project area there are five wildlife corridors.

Both the San Dieguito River (Lake Hodges) and Los Peñasquitos Creek are considered important wildlife corridors. Locations of these areas are shown on Figures 3-5 and 3-6. The City of San Diego's Multiple Species Conservation Program (MSCP) identifies these areas as Biological Core and Linkage Areas and each is identified in regional conservation plans as either preserved or areas targeted for conservation. The MSCP is a habitat conservation planning program designed to preserve a network of habitat and openspace within southwestern San Diego County. Los Peñasquitos Creek, in particular, has frequent mule deer (*Odocoileus hemionus*) use as evidenced by numerous sightings and commonly observed scat and tracks. Green Valley is likely a secondary corridor since it is shorter and ends just upstream of I-15 at the Rancho Bernardo Inn Golf Course. Chicarita Creek, a willow riparian and oak riparian woodland, would be an additional secondary corridor, trending more or less north south in the I-15/SR-56 area, from north of Los Peñasquitos Creek, before ending near Carmel Mountain Road. The Integrated Natural Resources Management Plan for MCAS Miramar identifies San Clemente Canyon, which passes under I-15, as a regional wildlife corridor (U.S. Marine Corps 2000).

3.10.2 Impacts

Temporary impacts to the wildlife corridors at Lake Hodges, Los Peñasquitos Creek, Green Valley Creek, Chicarita Creek, and San Clemente Canyon are likely to occur. The proposed measures as described in Section 3.10.2 would help facilitate movement and habitat use by animals such as mule deer, bobcat, mountain lion, and gray fox during construction. No permanent impacts to wildlife corridors are anticipated.

3.10.3 Measures to Minimize Harm

Though impacts are only temporary, the following measures would be needed at all of the above bridge locations to ensure that these wildlife corridors remain viable during construction activities. These measures include:

- Construct bridge falsework with spaces large enough to allow passage of mule deer and other mammals
- Leave no open trenches if work is not actively being performed in the immediate area
- Shield lighting to minimize disruptions outside immediate work area
- Have biological monitor on site to monitor corridors

3.11 Floodplain

Executive Order 11988 on floodplain management directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

The 100-year floodplain is defined as “the area subject to flooding by the flood or tide having a one percent change of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the 100-year floodplain.”

There are five different floodplains within the project boundaries. They are:

- Carroll Canyon Creek
- Los Peñasquitos Creek
- Chicarita Creek

- Green Valley Creek
- Lake Hodges

The Carroll Canyon drainage basin is located east of I-15, and flows from east to west. The creek originates in the northwest section of the United States Marine Corps (USMC) Air Station Miramar, south of Scripps Miramar Ranch, in the City of San Diego. The drainage basin for this creek is approximately 2.13 square kilometers (0.82 square mile). The upstream portion of the creek is enclosed in a pipe system, which goes below USMC Air Station Miramar and the surrounding housing development. The Flood Insurance Study for the County of San Diego, written by the Federal Emergency Management Agency in 1981, states that the base flood (100-year) for Carroll Canyon Creek is 189.72 cubic meters per second (cms) (6,700 cubic feet per second)

The Los Peñasquitos drainage basin flows westerly and is located east of I-15. According to the comprehensive plan for Flood Control and Drainage, the basin for this creek encompasses approximately 241 square kilometers (93 square miles). Of this area, 80.3 square kilometers (31 square miles) are upstream of I-15 in the Poway Valley.

There are seven tributaries to the Los Peñasquitos Creek: Poway Creek, Pomerado Creek, Los Peñasquitos Creek, Beeler Creek, Cypress Canyon Creek, Chicarita Creek, and Rattlesnake Creek. According to Federal Emergency Management Agency (FEMA) the base flood (100-year) is 436 cms (15,397 cfs).

The Chicarita Creek drainage basin flows southerly and I-15 is located within the watershed. The basin is approximately 10.45 square kilometers (4 square miles) in size. Of this area, 7.02 square kilometers (2.7 square miles) is upstream of the intersection of Ted Williams Parkway and I-15. FEMA flood insurance mapping has not been established for the Chicarita Creek floodplain.

The Green Valley drainage basin is located to the north of the Poway Creek system and includes Poway Creek, Rattlesnake Creek and Beeler Creek just east of the Rancho Bernardo Community.

Green Valley Creek originates in low rolling hills east of Espola Road near the Poway Reservoir and flows northwest in a natural channel to Martincoit Road. The Flood Insurance Study, conducted in 1985, states that the base flood (100-year) for Green Valley Creek is approximately 76.5 cms (2,700 cfs).

Lake Hodges has two lateral encroachments through I-15 between West Bernardo Drive and Via Rancho Parkway. The drainage basin studied here is approximately 303 square kilometers (117 square miles). This lake serves as a reservoir in the lower basin of the San Dieguito River Basin. The base flood (100-year) for Lake Hodges is approximately 1642.4 cms (58,000 cfs) within the limits of the floodplain assessment as furnished by the Department of Water Resources Bulletin No. 112 entitled “San Diego County Flood Hazard Investigation.”

Floodplain evaluations were done for each creek location and are on file in the Department’s District office.

3.11.1 Risks Associated with Implementation of the Proposed Project

The proposed project would encroach upon the floodplains of Los Peñasquitos Creek, Green Valley Creek, and Lake Hodges. No work would be required within the 100 year floodplain at Carroll Canyon Creek or Chicarita Creek.

The proposed encroachment at Los Peñasquitos Creek follows the existing alignment and occurs at the same location and is essentially the same in character and magnitude as now exists. The encroachment will consist of the addition of six new columns within the floodplain. Elevations range from 91.44 meters (300 feet) above sea level below the Los Peñasquitos bridge at the flow line, west of I-15, to 822 meters (2697 feet) on the peak of Iron Mountain in the hills to the northeast of I-15. The proposed 0.0036 hectare (0.0089 acre) encroachment into Los Peñasquitos Creek is relatively small when compared to the development that already exists in the watershed.

At Green Valley Creek, I-15 encroaches laterally into the floodplain. The proposed expansion of I-15 follows the existing alignment and the encroachment occurs at the same location and is essentially the same in character and magnitude as now exists. The proposed expansion consisting of one additional bridge column and retrofitted footings will encroach 0.065 hectare (0.16 acre) into the floodplain over what is currently existing. Upstream of I-15, there has been extensive subdivision development throughout the watershed of Green Valley Creek.

The drainage area for this creek is approximately 11.4 square kilometers (4.4 square miles), and mainly consists of rural residential development with elevations ranging from 103.6 meters (340 feet) above sea level at the outlet of the valley to 822.9 meters (2,700 feet) in the hills to the northwest.

The proposed encroachment into Green Valley Creek is relatively small when compared to the development that already exists in the watershed, and it should not effect the current characteristics of the floodplain. Within the areas adjacent to Green Valley Bridge, development does not exist.

I-15 currently encroaches laterally in the floodplain at Lake Hodges. Encroachment into a floodplain, such as this structure does, normally reduces the flood carrying capacity, increases flood heights and velocities, and increases flood hazards beyond the encroachment area. However, the proposed expansion of I-15 follows the existing alignment and the encroachment occurs at the same location and is essentially the same in character and magnitude as now exists. The proposed project would encroach 0.23 hectare (0.58 acre) into the floodplain over what is currently existing. This value does not include the removal of the existing columns which would reduce the existing encroachment into the floodplain by 0.04 hectare (0.11 acre). Upstream of I-15, there has been subdivision development throughout the watershed of Lake Hodges.

3.11.2 Impacts on Natural and Beneficial Floodplain Values

Direct physical effects of the project on the above mentioned floodplains will be limited to temporary construction impacts and the permanent, but not substantial, effects of the placement of supporting piers in the floodway.

Upon completion of all bridge work, heights of the existing bridges will not be altered; thus, would not create any additional barriers to biological resources in the area. Some additional shading may occur below the structures with the widening, however, shading is not anticipated to affect sensitive resources. The majority of the bridges are at an elevation where light is not restricted; thus, shading created by the proposed expansion would not impact biological resources.

Impacts to visual resources associated with widening of the bridges are minimal due to the number of viewers of the structures. Lake Hodges is the most prominent structure within the corridor since it serves as part of the San Dieguito Regional Park open space network that serves as a barrier between the cities of Escondido and Rancho Bernardo.

Since all of the bridge expansions are located within State right-of-way and no permanent acquisitions are required, no impacts to openspace are anticipated.

Minor temporary impacts to recreational use of areas located underneath the bridges are anticipated during construction. At Lake Hodges the bridge would have a permanent maximum reduction in vertical clearance of 0.30 meter (1.0 foot) resulting in a minimum clearance of 3.35 meters (11.00 feet). An additional temporary loss of vertical clearance due to falsework for the bridge would also occur resulting in a temporary vertical clearance of approximately 2.5 meters (8 feet 4 inches) for a period of approximately 24 months.

3.11.3 Measures Proposed to Restore and Preserve the Natural and Beneficial Floodplain Values Impacted by the Proposed Project

The design of the river crossings will result in only minimal effects on the floodplain. In order to minimize floodplain impacts the following measures would be utilized:

- Limiting the area affected by construction to minimum necessary, using barriers or fences to protect sensitive areas
- Employing BMPs to control erosion and runoff
- Designating and restricting access to Environmentally Sensitive Areas (ESA)
- Structure design shall be enhanced with architectural features and be consistent with corridor design themes developed by the District Landscape Architect.

3.11.4 Support of Incompatible Floodplain Development

The proposed project would not support incompatible development. No new access and no direct access to the affected floodplains would be provided by the proposed project. Access to the facility would be controlled, and the freeway would cross the floodplains on structures above the floodplain elevation. The only points of authorized egress from the freeway will be at interchanges with existing or future streets.

3.11.5 Evaluation of Practicability of Alternatives to Floodplain Encroachment

The proposed project lies within the corridor reserved for I-15 based on the Route adoption in 1969. Subsequent to that adoption, land adjacent to the corridor has been intensely developed. As discussed in Chapter 2, the proposed project is the only build alternative that would meet the purpose and need.

The proposed project would not create substantial encroachment and would create few additional impacts to the FEMA designated 100-year floodplains beyond what currently exist.

3.12 Threatened and Endangered Species

The Endangered Species Act of 1973 establishes guidelines for the preservation and protection of species that are threatened or endangered. In addition, the California Endangered Species Act (CESA) (Fish & Game Code §§ 2050) generally mirrors the Federal Endangered Species Act in its goals and guidelines.

During biological studies, a list of sensitive species potentially occurring in the I-15 corridor was originally obtained from the United States Fish and Wildlife Service (USFWS) in 1998 and was updated in 2000 and 2002 (see Figure 3-7). A file review was conducted of past Department biological studies within the areas of the proposed project. In addition, a search of the California Natural Diversity Database (CNDDB 2000) for the project area and a review of plants listed by the California Native Plant Society (CNPS) as rare and/or declining was conducted. Many species identified did not have suitable habitat present and were not further reviewed. Field studies were conducted from March 1999 through May 2000 in accordance with the latest protocol guidance (Fish and Wildlife Service 1007; 2000a). Focused studies were conducted for threatened and endangered species including arroyo toad (*Bufo microscaphus californicus*), coastal California gnatcatchers (*Polioptila californica californica*), vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and Quino checkerspot butterfly (*Euphydryas editha quino*, Quino) habitat.

3.12.1 Affected Environment

I-15 bisects an important east-west strip of coastal sage scrub (CSS) that is found within the study area. This linear stretch of CSS lies within the Multiple Species Conservation Program's (MSCP) Multiple Habitat Planning Area and represents one of the largest continuous blocks of CSS in the region. This large patch of habitat CSS serves as a major east-west corridor for wildlife, and the area includes many gnatcatcher populations.

The project feature maps, Figure 2-1 through 2-28, show biological resources located within the study area boundaries. Mapped resources include areas both inside and outside of the State right-of-way.

Biological resources outside of the State right-of-way would only be directly impacted at areas where easements are required. In addition, temporary indirect impacts could occur from noise during construction.

The mapping shows locations of chaparral and CSS (green patterned areas), Orcutt's brodiaea (blue patterned area), California gnatcatcher (yellow circle), vireo (blue circle), southwestern willow flycatcher (pink circle), Rufous-crowned sparrow (red circle), Orange throated whiptail lizard (orange circle), California adolphia (blue patterned areas), Dot-seed plantain (pink patterned areas), San Diego sagewort (orange patterned areas), and San Diego barrel cactus (purple patterned areas).

3.12.2 Impacts

Focused surveys conducted during 1999 and 2000 for the endangered least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) detected neither species within the project footprint. However, both species were observed adjacent to the project, on the northwest and southwest sides of Lake Hodges. A patch of Dot-seed plantain (*Plantago erecta*), a larval host plant for the endangered Quino checkerspot butterfly (*Euphydryas editha quino*, Quino), was observed just outside of grading limits on the southbound side of I-15, south of State Route 56, in addition to other locations adjacent to the project limits. No Quino checkerspot butterflies were observed during protocol surveys. The other remaining species on the USFWS Species List including arroyo toad (*Bufo microscaphus californicus*), southwestern willow flycatcher (*Empidonax traillii extimus*), bald eagle (*Haliaeetus leucocephalus*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), and Riverside fairy shrimp (*Streptocephalus woottoni*) were not identified in the project impact area.

A total of 11 plant species of concern, eight Federal and/or State listed, were reviewed for presence in the I-15 Corridor as suggested by the USFWS. These species include: San Diego thorn mint (*Acanthomintha ilicifolia*), Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), Encinitas baccharis (*Baccharis vanessae*), thread-leaved brodiaea (*Brodiaea filifolia*), Orcutt's spineflower (*Chorizanthe orcuttiana*), San Diego button celery (*Eryngium aristulatum* var. *parishii*), Mexican flannelbush (*Fremontodendron mexicanum*), willow monardella (*Monardella linoides* ssp. *viminea*), spreading navarretia (*Navarretia fossalis*), California Orcutt grass (*Orcuttia californica*), and San Diego mesa mint (*Pogogyne abramsii*).

None of these plants occur within the project limits; thus none would be impacted by the Managed Lanes Project.

In addition, a total of 12 species of plants listed as sensitive by the CNPS were reviewed for presence in the I-15 Corridor. Five of these species would be impacted by the Managed Lanes Project. These include California adolphia (*Adolphia californica*), San Diego sagewort (*Artemisia palmeri*), Orcutt's brodiaea (*Brodiaea orcuttii*), San Diego barrel cactus (*Ferocactus viridescens*), and Robinson's peppergrass (*Lepidium virginicum*). Impacts to each species range from two individuals to 50 individuals. Measures will be taken to avoid and minimize impacts to the extent practicable during construction. These measures would include transplantation and/or off-site mitigation in coordination with the appropriate resource agencies.

Formal consultation with the U.S. Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act of 1973, as amended, was initiated on November 3, 2000. Discussions consisted of impacts that the construction of this project may have on the federally-listed California gnatcatcher (*Polioptila californica californica*), as well as critical habitat for the gnatcatcher. A total of 30 individual areas consisting of 17.48 hectares (43.2 acres) of CSS habitat and 15 territories (11 pairs, 4 single) of coastal California gnatcatchers would be impacted. This would be a direct loss of habitat likely used by gnatcatchers for breeding, foraging, and sheltering in these areas.

The Service issued its Biological Opinion on May 8, 2001 and concluded that the proposed project is not likely to jeopardize the continued existence of the coastal California gnatcatcher (*Polioptila californica californica*). The Biological Opinion can be found in Appendix B. The Biological Opinion has further details on the affected environment, impacts, and measures to minimize harm. The majority of these details are repeated in this section for convenience.

3.12.3 Measures to Minimize Harm

Avoidance and minimization of impacts to threatened and endangered species will be accomplished through the following measures:

- Establishment of environmentally sensitive areas (ESA)

- Pile driving at Lake Hodges will occur outside vireo breeding season (March 15 through September 15)
- When night work occurs lighting will be shielded and directed away from habitat.

In addition, parcels consisting of 93.65 hectares (231.43 acres) have been purchased with State only funds as mitigation for impacts to CSS habitat and gnatcatchers.

Figure 3-8: Bonita Meadows Mitigation Site, shows the location of the mitigation site in the unincorporated community of Sunnyside (adjacent to Proctor Valley Road).

The Bonita Meadows site was purchased by the Department under the terms and conditions of the non-jeopardy Biological Opinion (cumulative effects section). USFWS considered this site a conservation area of regional importance to gnatcatcher populations. This site is of high value based on its resources and because it was an area that was scheduled for future development. It is now set aside as permanent open space. Studies are currently being conducted to document acreage of CSS and numbers of sensitive species present within the mitigation site.

3.13 Cultural Resources

Prior to the implementation of field studies, the National Register of Historic Places (1979 to present), California Register Listings in the quarterly minutes of the State Historical Resources Commission (1995 to present), California Inventory of Historic Resources (1976), California Points of Historical Interest (1992), California Historical Landmarks (1990), and the South Coastal Information Center were consulted to identify previously recorded cultural resources located within the project's area of potential effects (APE). Archaeological and historic architectural studies were conducted for this undertaking.

The results of these studies were presented in a *Historic Property Survey Report* (HPSR) dated July 13, 2001. The HPSR was submitted to the Federal Highway Administration (FHWA) which transmitted the document to the State Historic Preservation Officer (SHPO) for review and concurrence. SHPO concurred on January 11, 2001, that no historic properties are present within the APE established for this undertaking, and that this project has complied with its Section 106 requirements, in accordance with the National Preservation Act (as amended), its promulgating regulations in 36 CFR 800.4(d)(1).

Following is a discussion of the impacts that the proposed project will have on cultural resources within the APE.

3.13.1 Affected Environment

Two bridges within the APE, Green Valley Creek Bridge (57-0039R) and Old Peñasquitos Creek Bridge (57-0106S) are over fifty years old (both constructed in 1949). Although Green Valley Creek Bridge had been listed on the Historic Bridge Inventory as ineligible, it was reevaluated for this project and was again found to be ineligible for the National Register of Historic Places.

The previously unevaluated Old Peñasquitos Creek Bridge retains a fair degree of integrity (with alterations limited to resurfacing, to railing and curbs, re-paving the deck with cement, and the addition of a sewer pipe along the east side). Construction of two modern bridges spanning Peñasquitos Creek immediately adjacent to 57-0106S has highly compromised the integrity of this bridge's setting.

The bridge does not represent a great feat of engineering or design, nor does it represent the work of a master; it is also not associated with any significant event or prominent person in State or local history. The style of construction is considered to be better exemplified by another local bridge (57C-361, Black Canyon Road Bridge). Based on these factors, Old Peñasquitos Creek Bridge is not eligible for National Register listing.

In addition to the two bridges addressed above, one structure older than 50 years old is located within the APE and was evaluated for this project. It is a single-family residence constructed in 1948 in an agricultural region in what was historically the outskirts of the town of Escondido. The structure retains sufficient integrity to warrant formal evaluation; however, nothing in the historical record indicates that the house was a significant property during the period of post-war expansion (1950s and 1960s) that followed its construction. Nor did the historical record point to any other important events or individuals that were associated with the property. Architecturally, the house is also undistinguished. Therefore, this structure does not meet the criteria for National Register.

A total of 288 post-1950 structures are located within the APE. All are suburban housing developments that date from the 1970s through the 1990s. None appear to be eligible for the National Register. All are situated adjacent to proposed noise barrier locations that would be outside the existing right of way.

Since these structures were all constructed after 1970 and are not eligible for the National Register they would not be considered of historical or architectural importance.

3.13.2 Impacts

No cultural, historical, or archaeological resources were identified within the survey limits during the time of the study; thus, no impacts are anticipated.

3.13.3 Measures to Minimize Harm

Since no impacts are anticipated, no additional measures would be needed.

3.14 Paleontological resources

A paleontological study conducted for this undertaking identified the presence of geologic formations with potential to contain significant fossil resources. Further discussion of study results follows.

3.14.1 Affected Environment

Two geologic formations with potential for significant paleontological resources – the Friars Formation and the Linda Vista Formation – are located within and adjacent to the project corridor.

The Friars Formation is middle Eocene in age (about 46 million years) and has a high probability of producing important vertebrate fossils, especially terrestrial mammals, such as primates, artiodactyls, insectivores, opossums, rodents, and perissodactyls; also reported from this formation are marine microfossils, macroinvertebrates, and botanical fossils.

The Linda Vista formation represents a marine and/or non-marine terrace deposit of early to late Pleistocene age (0.5-1.5 Ma). It has a moderate probability of producing marine invertebrates, such as clams, barnacles, scallops, and sand dollars; it may also produce vertebrates, such as sharks and baleen whales.

3.14.2 Impacts

Direct impacts to paleontological resources occur when earthwork activities, such as mass grading operations, cut into the geological deposits within which fossils are buried. Impacts to potential paleontological resources within the project limits are anticipated.

3.14.3 Measures to Minimize Harm

Impacts to paleontological resources will be minimized through construction monitoring, fossil recovery, laboratory analysis, report preparation and curation as defined under NEPA (National Environmental Policy Act) and CEQA (California Environmental Quality Act), Section 15023, Appendix G [j]. In addition, a qualified paleontologist should be present at the pre-construction meeting and should be present on-site during the original cutting of previously undisturbed deposits of high sensitivity formations.

When fossils are discovered, the paleontological monitor should recover them which may include temporarily directing, diverting, or halting grading activities. Fossil remains collected during the monitoring and salvage portion of the program should be cleaned, repaired, sorted, and cataloged.

A final summary report should be completed that outlines the results of the program. This report should include discussions of the monitoring methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils.

3.15 Hazardous Waste Sites

In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Part 300, Title 40, CFR, an Initial Site Assessment (ISA) was completed for this area previous to this project. The ISA was finalized in May 1998. An additional lead investigation was performed in August of 2001 based on the ISA. Following is a discussion of the potential for hazardous waste sites to be located within the corridor.

3.15.1 Affected Environment

Based on the Initial Site Assessment performed, it was determined that the primary hazardous waste issue for the proposed project was aerially deposited lead.

Though the lead investigation encompassed the entire corridor, the study focused on an approximately 9.7 kilometer (6 mile) stretch of the I-15 corridor from the Miramar Way Overcrossing to Ted Williams Parkway interchange. These limits were determined based on historic average daily use. This stretch of roadway had the highest averages for traffic volume prior to 1984.

3.15.2 Impacts

As part of the study, samples were taken every 100 meters (328 feet) from the outside northbound and southbound freeway shoulders. Sampling was confined to the upper two feet of the soil and within one meter of the outside shoulder. This study determined that the lead concentrations in the vicinity of the project are not hazardous. Encountering other hazardous wastes are not anticipated for this project.

The proposed project would not violate any published federal, State, or local standards pertaining to hazardous waste, solid waste or litter control. The proposed project would not involve a substantial risk of an explosion or the release of hazardous substances in the event of an accident or otherwise adversely affect overall public safety.

3.15.3 Measures to Minimize Harm

If hazardous waste is discovered during construction, the resident engineer will take appropriate actions, which may include but not be limited to halting work in the area of concern, flagging the area, and notifying the Department's District Hazardous Waste Coordinator. The coordinator will then likewise take appropriate actions which may include but not be limited to the following:

- If the substance is unknown and immediate identification is required, call a hazardous materials (HAZMAT) team from San Diego County.
- If immediate identification is not required, contact a certified laboratory to sample and identify the hazardous waste.
- Follow established procedures for clean-up

3.16 Visual

A study, Visual Impact Assessment I-15 Managed Lanes, dated February 2002, was undertaken to assess the visual impact of the proposed project, recommend appropriate measures to minimize harm, and address cumulative visual effects.

Visual impacts are determined by analyzing the degree of change in visual resources and viewer response to those resources. Following is a discussion of the findings of the visual impact analysis.

3.16.1 Affected Environment

The regional landscape of central San Diego County is characterized by expansive mesas, broad open canyons, and rolling hills. With the exception of the Miramar Naval Air Station in the southern portion of the project, the land has been subject to suburban development over the past 25 years. Despite the trend towards urbanization in the I-15 corridor, the natural character of the landscape has been partially preserved due to the presence of open space tracts that remain within the freeway viewshed. Usually, this open space occurs in areas that are less prone to development such as mountain and canyon slopes.

Lake Hodges is perhaps the most important natural feature within the project. It is not only a unique feature in an arid landscape, it is also part of the San Dieguito Regional Park open space system which serves as a natural buffer between the cities of Escondido and Poway.

In addition to natural open space, there are several distinctive constructed landscape features including the mature eucalyptus groves of Scripps Ranch, two large parks and three golf courses near Carmel Highlands and Rancho Bernardo, and freeway landscaping throughout much of the corridor.

The presence of development is mitigated to a large extent by the suburban nature of adjacent land uses. Considering the large population served by the I-15 corridor, there is a surprisingly small amount of commercial strip development and associated signage that is characteristic of other freeways in the region. Most commercial areas and business parks along the corridor such as those at Carroll Canyon Road, Rancho Bernardo Road, and Via Rancho Parkway are heavily landscaped, sited away from the edge of the freeway, and minimally signed.

3.16.2 Impacts

Because it is not feasible to analyze all the views in which the proposed project would create, a number of key viewpoints were selected that would most clearly display the visual effects of the project. These areas are called key views.

The key views also represent the primary viewer groups that would potentially be affected by the project.

For this project the following eight key views were selected. A description of the impacts at each keyview follows.

- Key view #1 looks south from the parking lot of the apartment complex located adjacent to the southbound exit ramp at the Carroll Canyon Road interchange
- Key view #2 is in a low-lying area located west of the freeway on Maya Linda Road.
- Key view #3 is at Erma Road south of Scripps Westview Way interchange Looking at I-15 Northbound, just north of Mira Mesa Boulevard interchange
- Key view #4 is on northbound I-15 north of Mira Mesa Boulevard
- Key view #4a located between Mercy Road and Penasquitos Canyon Bridge looking south
- Key view #5 is adjacent to the southbound lanes between Ted Williams Parkway and Carmel Mountain Road overcrossing
- Key view #6 looks at southbound I-15 near Duenda Drive overcrossing in Rancho Bernardo
- Key view #7 is at Center City Parkway looking south towards the Del Lago Avenue overcrossing
- Key view #8 is on northbound I-15 near Citracado Parkway

Key view #1 shows a proposed 3 meter (10 foot) high wall, located along the easterly portions of a residential complex near the Carroll Canyon interchange. The proposed wall would block views from the apartment complex to the east and focus views on the parking lot itself. The wall would create an undesirable sense of enclosure and would likely create undesirable light and air access effects. The proposed wall would likely be viewed as a negative change to the community since it would conflict with local values and goals as expressed in community design guidelines.

The City of San Diego building code prohibits construction of free standing solid walls of over 3 meters (10 feet) in height adjacent to multifamily residential parking lots such as this. Although the Department is not subject to local building codes every attempt is made to be consistent. Viewer response is expected to be moderately high. Viewer sensitivity is expected to be moderately high, and the resulting visual impact would be moderately high. See Figure 3-10 for before and after photos of the proposed features.

Key view #2 shows a retaining wall at Maya Linda Road that would vary from 3 to 10 meters (9.8 to 32 feet) high with a 2.4 meter (7.9 foot) high soundwall located at the top. Figure 3-11 shows a location where the retaining wall is 10 meters (32 foot) high. The proposed wall would decrease the intactness and unity of the viewshed and the proposed retaining wall would become an intrusive visual element as viewed from the local street. Adverse visual quality of the viewshed would be high changing its character from suburban to urban. The level of change to the visual character of the viewshed would be high and it is anticipated that the wall would be perceived as negative. The primary viewer of the wall would be the residents of the adjacent residential complex. It is likely that sensitivity to this change may be moderate to high because the proposed wall would conflict with local values and goals as expressed in community design guidelines. Since Maya Linda Road is a cul de sac, the number of non-residents viewing the high side of the wall would be low. Changes to visual quality and character would be highly adverse, viewer response would be moderately high, and the overall adverse visual impact would be moderately high.

Key view #3 shows freeway widening combined with a 1 to 3 meter (3.2 to 9.8 foot) high retaining wall with a 2.4 meter (7.9 foot) high noise wall on top of it. The walls would block undesirable views of the freeway for residents and local street users, while preserving distant views. The suburban character of the community would be improved by removing views of the freeway, but adversely impacted by the presence of a wall which is urban in scale and conflicts with nearby residential architecture. The adverse impact to visual quality would be moderate and there would be a low level of change in visual character. Overall viewer response to visual changes is expected to be moderate to high since it conflict with local values and goals as expressed in community design guidelines. Overall adverse impact would be moderate. See Figure 3-12 for before and after photos of the proposed features.

Key view #4, shows a 2.4 meter (7.8 foot) high noise wall located at the top of a 1.2 meter (4 foot) high slope.

The introduction of a soundwall at the edge of the freeway would adversely change the visual character in this portion of the viewshed and would interrupt the experience of driving through a suburban landscape. It would emphasize views of traffic and diminish the positive qualities of remaining distant views. This change in visual character is likely to be perceived to be adverse by the community since the overall wall height conflicts with local values and goals as expressed in community design guidelines. Overall viewer response is expected to be high and the overall adverse impact would be moderately high. See Figure 3-13 for before and after photos of the proposed features.

Key view #4a, shows a proposed freeway widening and a 4.3 meter (14.1 foot) noise barrier and concrete safety barrier. The wall would become a prominent visual feature, block desirable views from the road, and change the existing visual character of the freeway. The close proximity of the wall to freeway viewers would create a sense of enclosure and emphasize close proximity views of freeway traffic. The wall would result in a loss of visual intactness because its long, unbroken vertical surface would appear as singular unharmonious form in the landscape. Visual unity would also be reduced because the wall would sever the spatial relationship between the freeway and the surrounding landforms. The adverse change in visual quality would be moderately high. The introduction of a sound wall to the edge of the freeway would adversely change the visual character in this portion of the viewshed. Its presence would block expansive long range open space views, emphasize views of traffic, and diminish the positive qualities of remaining distant views. This change in visual character is likely to be perceived to be adverse by the community. The views would be of short duration. Sensitivity to this change in the visual environment is likely to be moderate to high because the proposed wall would conflict with local values and goals as expressed in community design guidelines. Overall viewer response is expected to be high and the overall adverse impact would be moderately high. . See Figure 3-13a for before and after photos of the proposed features.

Key view #5 shows freeway widening in combination with shifting the existing earthen berm. In order to place the berm within the existing right-of-way, a retaining wall 1.8 to 2.4 meters (6 to 7.9 feet) in height will be located along the existing right-of-way line. The relocated berm and proposed wall would preserve the essential character of the existing view, however would contrast with natural features and lower the unity and intactness of the viewshed. The change to visual character, visual quality would all be low. See Figure 3-14 for before and after photos of the proposed features.

Key view #6 shows freeway widening in conjunction with replacing the existing berm in the median with a retaining wall near Duenda Road in Rancho Bernardo. Since this type of change to the visual environment occurs on a majority of the project, hundreds of thousands of people per day would have a moderate duration exposure to the changes. Hundreds of adjacent residents would be exposed to the freeway due to the loss of landscape screening. Viewer sensitivity to the visual changes are expected to be moderate for freeway travelers and high for nearby residents. Intactness and unity would decrease moderately due to increased pavement, loss of the vegetated median slope, and loss of existing mature freeway landscaping. Viewer response to the change would be moderate. The resulting adverse impact would be moderate. See Figure 3-15 for before and after photos of the proposed features.

Key view #7 shows a direct access ramp structure that is proposed to replace the Del Lago Avenue overcrossing. The median would be widened and the median planting would be removed. The main lanes of the freeway would be widened to the outside requiring adjacent slopes to be graded and a retaining wall to be constructed. Intactness and unity would be decreased to a low level because of the contrast between the large built forms of the freeway and the surrounding landscape. Vividness would also be decreased to a moderate level because the large scale of the freeway would detract from the distant views. Hundreds of thousands of people per day would have a short duration exposure to the proposed changes. Viewer sensitivity to the visual change is expected to be moderate for freeway travelers and nearby residents. Changes to the visual character would probably be considered by local viewers to be adverse. Viewer response to visual changes is expected to be moderate. The resulting adverse impact would be moderately high. See Figure 3-16 for before and after photos of the proposed features.

Key view #8 shows removal of median planting and the landscaped berm in conjunction with a raised planter between relocated median barriers and a landscaped slope. Intactness and unity are moderately high due to the complementary relationship between the freeway and the surrounding landscape. The existing median planting reduces the scale of the facility by half by obscuring views of oncoming traffic. The landscaped berm contributes to the unity and intactness of the view. The vividness of the viewshed is low due to the lack of memorable visual features in the landscape. Visual quality would moderately decrease because of the widening and temporary loss of freeway landscaping. Visual intactness and unity would both decrease as a result of the paved surfaces gaining dominance in the viewshed.

Adjacent homes would be buffered by existing landscaping that exists on their properties. The I-15 corridor in this area has been designated by the City of Escondido as a scenic corridor, so viewer sensitivity to the visual change is likely to be high for area residents and freeway travelers. The adverse change to visual quality would be moderate, change to visual character for local residents would likely be considered adverse, and viewer response levels are expected to be high. The resulting adverse impact would be moderate. See Figure 3-17 for before and after photos of the proposed features.

Conclusion

The adverse visual effects of the project are that the suburban and semi-rural character of the I-15 corridor would become noticeably more urban. Generally, this change would affect freeway users more than it would those who view the freeway from adjacent communities.

Views from the freeway would be diminished in quality by the increase in size and scale of the freeway and its walls, structures, and appurtenances. Because the right-of-way footprint would remain essentially the same as it is now, the new built forms would be even more apparent.

The effect of this change would be magnified because the large numbers and sizes of vertical walls that are proposed in the median, at structures, and at the edges of the freeway would be highly visible.

Views to the freeway would also be adversely affected at right-of-way edges and community entrances. The right-of-way boundaries between the freeway and the communities would remain the same.

The existing landscaped buffers would, however, be reduced in size, and in some cases be fully or partially replaced with retaining walls and/or noise barriers. The most extreme example of this type of change is the proposed retaining wall/noise wall at Maya Linda Road (Key View #2). At community entry points, freeway interchange landscaping would be reduced and structures would be enlarged. The increased scale of the roadway and structures would adversely affect pedestrian views at freeway crossings. The new interchanges may no longer be consistent with the visual goals of some communities in the corridor due to wall heights.

3.16.3 Measures to Minimize Harm

The Department and the FHWA mandate that a qualitative/aesthetic approach should be taken to mitigate for visual quality loss in the project area. This approach addresses the actual cumulative loss of visual quality that will occur in the project viewshed when the project is implemented. It also identifies visual measures that can aid in gaining public acceptance of the project.

Visual measures to address adverse project impacts addressed in the key view assessments and summarized in the previous section will consist of adhering to the following design requirements in cooperation with the District 11 Landscape Architect. The requirements are arranged by project feature and include design options in order of effectiveness. All visual measures to minimize harm will be designed and implemented with the involvement and concurrence of the the Department's Landscape Architect.

Landscaped Sound berms (Figure 3-18)

Noise barriers would consist of landscaped berms wherever possible. Landscaped berms are preferred for noise barriers.

Sound berm with retaining wall (Figure 3-19)

In areas where the right-of-way is too narrow to accommodate a berm, a retaining wall may be used to avoid constructing a sound wall on top of the berm. This will also result in a barrier with a lower profile than a noise berm/wall combination due to the berm's sound attenuation qualities.

Sound berm with sound wall (Figure 3-19)

This barrier configuration is preferable in situations where a tall retaining wall at the toe of slope would create a visual impact to an adjacent property. To be effective, this option should incorporate a berm with a 1:2 slope on the freeway side of that is 1.2 meters (4 feet) high (minimum). This size berm should preclude the need of a safety barrier to protect the noise wall and allow enough space to provide screening shrubs in front of the wall.

Sound berm with landscape buffers (Figure 3-19)

In cases where berms are entirely unfeasible, sound walls should incorporate planting on both sides. In some cases, retaining walls may be needed to provide the required planting space on the freeway side of the wall.

Sound wall planting pockets (Figure 3-20)

Where right-of-way is too narrow to employ the configurations listed above, a safety barrier is required to be placed in front of the wall. A minimum 0.6 meter (2 feet.) wide planting area should be provided between the back of the barrier and the face of wall. Placing the sound wall on top of the barrier should be avoided where possible.

Transparent sound walls (Figure 3-20)

In situations where noise receptors are located above the elevation of the freeway, noise walls located at the top of slope near the right-of-way line or on private property shall be used if feasible and reasonable. Locating walls at higher elevations nearer the receptors substantially reduces the height of walls to achieve “line of sight” noise reductions. In cases such as those depicted in Key View 5, where the walls would block views from residences, transparent panels should be used to preserve those views.

Architectural Detailing

Noise walls will be designed to be visually compatible with the surrounding community. Architectural detailing such as pilasters, wall caps, interesting block patterns, and offset wall layouts will be used to add visual interest, reduce the apparent height of the walls, and to meet community design goals.

Retaining walls

Retaining wall/Barrier planting pockets (Figure 3-21)

In areas where retaining walls must be placed close to the traveled way, space should be reserved between the wall and the safety barrier to include a 1.8 meters (6 feet) wide planting pocket.



Terraced retaining walls (Figure 3-21)

In situations where site conditions permit, retaining walls over 5 meters (16 feet) in height, the wall should be divided into two separate structures sufficiently offset from one another to create a flat planting area between the two.

Mid slope retaining walls (Figure 3-22)

Retaining walls should be located at mid slope wherever possible to provide a buffer area for landscape screening between the wall and the freeway.

Terrain contoured retaining walls (Figure 3-22)

Retaining walls that follow the contours of the topography and maintain a constant elevation at the top of wall shall be used where appropriate. This type of wall shall be visually compatible with surrounding terrain and provide room at the base for a landscape screening buffer.

Plantable retaining walls

Crib walls that utilize a stacking tray design should be used in place of Caltrans standard design crib walls wherever possible to provide a landscaped surface that will blend in with the surrounding landscape.

Architectural surface treatment

Architectural features, textures and colors shall be used, as determined by the District Landscape Architect, to mitigate the appearance of retaining wall surfaces. Walls shall incorporate architectural features such as pilasters and caps to provide shadow lines, provide relief from monolithic appearance, and reduce their apparent scale.

Overcrossing, Undercrossing, Bridge, and Direct Access Ramp (DAR) Structures

Structure design shall be enhanced with architectural features and be consistent with corridor design themes developed by the District Landscape Architect. Pedestrian lighting, widened sidewalks (1.8 meters-2.4 meters [5.9 feet- 7.9 feet] in width), bicycle lanes, and other urban amenities on local street portions of structures would be provided to be consistent with community values and goals. Slope paving at undercrossings would be enhanced with texture to deter graffiti. See-through bridge rails such as the Type 80 rail (810 millimeters [32 inch] high concrete barrier with openings at bottom) would be used on the Lake Hodges and Green Valley Creek bridges.

Loss of existing freeway landscaping

Corridor landscaping

The project shall receive landscaping that is consistent with the appearance of the adjacent community. In areas of the project that are characterized by ornamental landscaping, freeway landscaping that includes trees, shrubs, and groundcover should be installed. In less developed areas of the corridor, landscaping with trees and shrubs will be planted.

Loss of existing median planting

Raised Median Planter

Existing median oleanders that are removed north of Citracado Parkway due to the project would be replaced by new oleanders of a medium sized variety planted in a raised bed of soil between two median barriers spaced a minimum of 2.0 meters (6.0 feet) apart. This can be seen in the bottom photosimulation on Figure 3-17.

Median Wall Planter

Loss of shrubs and herbaceous ground cover in existing medians of split alignment would be mitigated by creating a shrub planting area between median retaining walls and concrete barriers where the available width is of 2.0 meters (6.0 feet) or greater.

Median Barriers

In order to preserve desirable views and reduce the visual scale of the freeway facility, concrete median barriers shall be Type 60S (810 millimeter (32 inch) A shaped barrier) and Type 732 (810 millimeter (32 inch) bridge barrier).

Manufactured slopes

Slopes shall be graded 1:2 or flatter to support planting and irrigation. Grading would utilize techniques such as slope rounding, slope sculpting, and variable gradients to approximate the appearance of natural topography.

Lighting and Signage

Lighting and signage attachments on structures would occur at pilasters or be incorporated in other architectural features.

Existing freeway lighting and signage design themes for the corridor would be continued.

Pedestrian lighting on all overcrossings would be uniform and conform to the corridor design theme.

Soffit lighting would be provided on all undercrossings with pedestrian facilities.

Where possible, electrical and signal equipment at ramp termini would be placed in visually unobtrusive locations.

Operational and Maintenance Facilities

Barrier transfer machine facilities visible from the freeway or local streets would be screened from view with walls and/or vegetation, with the exception of the temporary parking in the median near Centre City Parkway.

Access control fences

Access control fencing shall be placed in visually unobtrusive locations of interchanges and bridges. It would be coated with black vinyl where appropriate.

Retaining walls and sound walls near right-of-way boundaries would be placed in such a way that an additional access control fence will not be needed. The “dead” spaces that occur between walls and fences should be avoided if at all possible.

Drainage and Water Quality Facilities

Concrete interceptor ditches shall not be placed at the toe of slopes adjacent to residential property or pedestrian use areas. Alternatives such as subterranean drainage placed below finish grade or a planted geo-reinforced drainage surface would be used.

Concrete drainage devices located in non-landscaped areas would be colored to match the surrounding soil.

Soft surface alternatives to concrete ditches and rock slope protection would be utilized wherever possible.

Detention basins and geo-swales in ornamentally landscaped areas would be planted with visually compatible ornamental ground cover.

3.17 Construction Impacts

The following discussion addresses construction staging and impacts associated with construction activities.

3.17.1 Construction Staging and Detours

For construction and funding purposes the Four Managed Lanes Alternative would be broken into three separate segments for construction staging. Figure 3-25: Four Managed Lanes Alternative, shows the locations of the three different segments.

The South Segment, in the City of San Diego, begins 2.4 kilometers (1.49 miles) south of State Route 163 and extends to 0.2 kilometer (0.12 mile) south of State Route 56. This segment would include the construction of the SB on-ramp from the Sabre Springs direct access ramp (DAR) and the Hillery Drive DAR. It is anticipated that construction in this segment would start between 2008 and 2010.

The Middle Segment, in the Cities of San Diego and Escondido, begins 1.0 kilometer (0.62 mile) south of State Route 56 and continues to 0.4 kilometer (0.25 mile) north of Del Lago Blvd./North County Fair OC. The schedule for this segment is to start construction in 2003 or 2004.

The North Segment, in the City of Escondido, begins at Del Lago Blvd. and extends to 0.5 km north of State Route 78. This segment would include the construction of the Del Lago Blvd./North County Fair DAR northern ramps and the Hale Avenue DARs. It is anticipated that construction in this segment would start between 2008 and 2010.

Detours

During construction, it is proposed to keep the same number of freeway lanes open during heavy demand times. This would be accomplished through the use of temporary concrete barrier and reduced shoulder and/or lane widths. Traffic would be shifted towards the median and outside widening would be completed. Once the outside widening is complete traffic would be shifted to the outside so median construction could occur.

Freeway lanes would be subject to closure during off peak times. All closures would occur between 11:00 PM and 5:00 AM. Freeway detours would be required for nighttime bridge work and where ramps and structures are closed.

Structure replacements would require a temporary reduction in the number of lanes and reduced shoulder width on the city streets. This is because the existing structures would be replaced one half at a time.

To mitigate this impact, the project would be staged so that adjacent bridges would not be under construction at the same time. For example, when Ted Williams Parkway/SR-56 is being reconstructed, Carmel Mountain Road overcrossing would not be. When Ted Williams Parkway/SR-56 is finished it would provide additional lanes to assist traffic that might be detouring from the Carmel Mountain Road overcrossing construction.

Via Rancho Parkway overcrossing and Del Lago Boulevard/ North County Faire overcrossing are similar to Ted Williams Pkwy/ SR-56 and Carmel Mountain Rd overcrossing. However, Del Lago Boulevard/ North County Faire overcrossing would not be replaced in two stages but would be totally removed and replaced. The reasons for this are that traffic volume is light, the existing bridge abutments are too close to the proposed widening of the freeway to be left during construction, and the new bridge can be completed in approximately nine months instead of 18 months.

Via Rancho Parkway would be constructed in two stages, both about nine months long. However, the North County Faire Shopping Center has requested that we not impact the peak shopping season in November and December. Work windows would be put in the construction contract to start the construction in January and finish it in September for each stage.

The Pomerado Road / Highland Valley Road overcrossing bridge replacement is proposed to be similar to Del Lago Blvd / North County Faire overcrossing in that it would be totally removed and traffic detoured to Rancho Bernardo Road interchange.

The reasons for complete removal of the bridge are that the Rancho Bernardo Road interchange would already have been improved to six through lanes under I-15 so it would have additional capacity. In addition the ramps would still be operational so approximately half of the traffic can still use this interchange (ie. NB ramps will have access to/ from the eastside of I-15 and southbound ramps would have access to/ from the westside of I-15). The overall construction time would be reduced from 18 months to nine months at this structure.

Replacement of Lake Hodges Bridge would be done in phases to ensure that the number of lanes open to motorists are not reduced. An 8 meter (26 foot) wide section would be constructed between the existing northbound and southbound main lanes. Once complete, traffic from the northbound lanes would be shifted to this newly constructed segment so that the northbound bridge could be demolished and reconstructed.

Once the northbound bridge is completed, both northbound and southbound traffic would be shifted to the new northbound and center bridges. Construction of the southbound bridge would then begin.

Reduced lane widths and detours at structures are summarized in Appendix D: Local Street Detours

There are several transit routes that may be affected during construction. Transit impacts vary from schedule impacts that would require adding additional time to the route timetable to routes that would require additional buses in order to maintain current schedules. Routes 20, 810, 820, 850, 860, and 980/990 could experience delays or require re-routing. The department is working with MTDB and NCTD to help minimize any impacts.

3.17.2 Impacts

Noise produced by construction equipment on this project would occur with varying intensities and duration during eight basic phases of construction. Because of the different phases of construction, no single location would experience a long-term period of construction noise.

A rough approximation of the construction noise levels for various pieces of construction equipment are shown in Figure 3-23: Construction Equipment Noise Ranges. This figure shows the range of noise emissions from various types of construction equipment at a distance of 15 meters (50 feet).

The short-term construction equipment noise impacts are estimated by comparing the existing noise levels with the estimated noise levels that are produced by various types of construction equipment.

The main lanes of I-15 will have the same number of freeway lanes during peak hours as are currently existing. Therefore, additional delays during peak times due to construction on the main freeway lanes would be minimal. Delay will occur on the main lanes during nighttime work when the complete freeway is closed and traffic is detoured. Complete freeway closures will generally be limited to between 11:00 PM and 5:00 AM. Portions of the entire corridor are expected to be under construction from 2003 to 2013.

Construction delays will occur at interchanges, as bridges are replaced. The delays range from minimal delays up to 10 minutes. Each interchange will be under construction for a period between 12 and 24 months.

It is an explicit goal of the TMP to develop innovative measures to reduce delays to the absolute practicable minimum. These measures would also aid in the avoidance of substantial social and economic impacts. Specific TMP features are discussed further in Section 3.17.3: Measures to Minimize Harm.

Construction air quality impacts would be temporary in nature. Fugitive dust is airborne particulate matter, generally of a relatively large particulate size. Construction related fugitive dust would be generated by haul trucks, concrete trucks, and other earth moving vehicles operating around the construction site and on access roads.

3.17.3 Measures to Minimize Harm

To help minimize construction related noise impacts the following construction noise control measures would be implemented:

- Near sensitive receptors, night work would be confined to a maximum of five consecutive nights at any given location. Between consecutive periods of work, a minimum of two weeks will be given prior to initiating additional work.
- Sound walls and berms will be constructed prior to opening lanes to traffic
- Maintenance yards, batch plants, haul roads, and other construction-oriented operations would be placed in locations that would be the least disruptive to the community. None will be allowed where construction mean peak noise levels would be increased more than 3 dBA. Noise monitoring would be required.
- Community meetings would be held to explain to the area residents about the construction work, time involved, and the control measures to be taken to reduce the impact of the construction work.
- No pile driving would occur between the hours of 7:00 p.m. and 7:00 a.m., on weekends, or on any State or Federal holidays.
- Portable noise screens would be used to provide shielding for generators or other similar portable construction equipment when work is close to noise-sensitive areas.

During construction, impacts to traffic would be mitigated through the use of many different TMP strategies including public notification, providing motorist information, prompt incident management, construction techniques, and through demand management strategies. Following is a discussion of each of these categories.

Public notification would be used to help educate individuals within the corridor about the project and delays that they may face. They will also allow any potential user the time to make alternate transportation arrangements during the construction period if they are affected. Following are the public notification strategies that would be utilized:

- Brochures and mailers
- Media releases and paid advertising
- Public Information Centers
- Public meetings
- Telephone Hotline
- Internet - Project Web Page

In addition to the public notification campaign there would also be numerous means to notify motorists out on the road of alternate routes, detours, and of any potential delays. These include:

- Changeable message signs
- Portable changeable message signs
- Ground mounted signs
- Highway advisory radio

During construction, traffic delays will exist that would only be compounded if accidents occur. Following are the strategies that will be employed to aid in incident management:

- Construction Zone Enhancement Enforcement Program (COZEEP)
- Freeway Service Patrol (FSP)
- Traffic Management Team (TMT)
- On-site traffic monitor (Contractor)

To facilitate construction staging to ensure that the different construction contracts do not create additional traffic impacts the following strategies would be used:

- Coordination of all construction projects within the corridor with the managed lanes schedule
- Develop timing plan for critical operation completion
- Lane closure charts to limit lane closures during peak traffic periods
- Include incentive clauses for early completion, and damage clauses for late opening of lane closures in contract
- Adjacent ramp closures would not be permitted. Staged replacement of all but two of the overcrossing bridges (half at a time); to allow for continued but reduced traffic flow
- No concurrent bridge overcrossing construction would be permitted where staged bridge replacement would detour traffic on the adjacent bridge structure
- Have contingency plans to manage alternate material on-site, excess equipment, emergency detours and incidents
- Use of detours where necessary

Finally, demand management strategies would be used to help reduce the number of individuals utilizing the lanes during the construction period. These strategies include:

- Park and ride lots
- Fund additional transit service
- Rideshare marketing
- Use of ramp metering

To minimize the amount of construction dust generated, and because the project is in a State PM10 non-attainment area all of the proposed particulate control measures related to construction activities would be considered:

I. During site preparation

- Minimize land disturbances
- Use watering trucks to minimize dust
- Cover trucks when hauling dirt
- Stabilize the surface of dirt piles, if not removed immediately
- Use windbreaks to prevent any accidental dust pollution

- Limit vehicular paths and stabilize temporary roads; and pave all construction roads and parking areas for a length no less than 15.2 meters (50 feet) where they exit construction sites to limit dirt on paved roadways

II. Construction

- Cover trucks when transferring materials
- Use dust suppressants on traveled paths which are not paved
- Minimize unnecessary vehicular and machinery activities
- Minimize dirt track-out by washing or cleaning trucks before leaving the construction site (alternative to this strategy is to pave a few hundred meters (a few hundred feet) of the exit road, just before entering the public road)

III. Post-Construction

- Revegetate any disturbed land not used
- Remove unused material
- Remove dirt piles
- Revegetate all vehicular paths created during construction to avoid future off-road vehicular activities.